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ABSTRACT

This is a collection of six papers concerning teachers as innovators. The first is entitled, "The Types of Environment Most Likely to Favour the Active and Effective Participation of Teachers in Educational Innovation." It is concerned with the commitment of the teacher to permanent participation in the adaptation of the education system in the changing context of the professional activity of teaching. It answers two questions: (1) What structures of support and incentives will best help teachers to engage effectively in educational innovation? and (2) What mechanisms of participation, dialogue, and confrontation will best facilitate the implementation of education innovations. The second paper, "School-Based Curriculum Development and Teacher Education Policy" argues the case for school-based curriculum development, presents a model for school use of the curriculum development process, discusses objections to and difficulties encountered in school-based curriculum development and the implications of school-based curriculum development for teacher education. The third paper is about "Teachers' Centres--Some Reflections on the British Experience." The fourth paper, "The Teacher's Role in Curriculum Development: A French View," addresses the ambiguity of teacher education vocabulary and educational innovations. The fifth paper, "Teachers and New Teaching Techniques: Some French Experiences," points out that the introduction of new teaching techniques is essential as a means of responding to pupils' new demands. The sixth paper, "Teachers and School Buildings," describes the contribution of educators in the provision of new school buildings and the adaptation of existing ones and looks at measures needed to help teachers make full use of the school building as an educational tool. (MM)

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NEW PATTERNS OF TEACHER EDUCATION AND TASKS

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PREFACE

Within the framework of the programme of work of the Education Committee, the OECD has over the last few years undertaken an analysis of various aspects of teacher policies in primary and secondary education.

At the heart of the problems which confront Member countries in the transformation of the teachers' roles are teacher education and new patterns of teacher tasks. These problems were analysed in an earlier OECD publication: The Teacher and Educational Change - a New Role.

Work and discussions among experts have led to a series of preliminary conclusions concerning trends in the two areas mentioned above and these have been published under the title: New Patterns of Teacher Education and Tasks: General Analyses. These analyses were based on a number of case studies of innovations in Member countries, which seem to respond to some of the key questions in the future development of the teaching profession.

The interest shown in these case studies has encouraged the Secretariat to publish the most significant of them in a series of volumes under the same general title, New Patterns of Teacher Education and Tasks. Each volume contains either country studies dealing with both teacher education and teacher tasks or studies that concern the more general aspects of training policies and changes in teacher tasks and working conditions. The present publication, Teachers as Innovators, forms part of this series. The opinions expressed in the reports which it contains are those of the authors and do not commit the OECD or the authorities in the Member countries concerned.

Part One

THE TYPES OF ENVIRONMENT MOST LIKELY TO FAVOUR THE ACTIVE AND EFFECTIVE PARTICIPATION OF TEACHERS IN EDUCATIONAL INNOVATION

by
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SUMMARY

This is a paper prepared in the framework of the OECD activities on Teacher Policies. It is concerned with the commitment of the teacher to permanent participation in the adaptation of the education system in the changing context of the professional activity of teaching. The paper takes two questions as its theme:

a) What structures of support and incentives will best help teachers to engage effectively in educational innovation?
b) What mechanisms of participation, dialogue and confrontation will best facilitate the implication of educational innovations?

The paper is based primarily upon a review of recent, relevant OECD working papers and of related theoretical literature.

The first of the five Sections refers briefly to evidence in support of the paper's basic assumption: that educationalists in Member countries are becoming increasingly concerned with the problems of the user (i.e. teachers and schools) in innovation and doubtful about the effectiveness of top-down strategies of the straightforward R.D. and D. type.

The second Section deals with the problems, tasks and procedures associated with innovation at the school level. Two major constraints on school-based curriculum development are identified: the degree of discretion or autonomy allowed to schools in curriculum matters; unfavourable teacher attitudes to the cumulative impact of radical and threatening innovations. Even with minimal external constraints and adequate resources, including the necessary theory and technology of curriculum development, it is concluded that schools can realistically expect to develop only parts of their curriculum. Key innovation management tasks are said to be: clarifying the nature of the innovation and providing the necessary training, school organisation, equipment, incentives and feedback procedures. The creative or problem-solving school is claimed, in the light of experience, to be a feasible concept though it would necessarily be dependent upon related innovations like staff development, professional tutors and improved external support mechanisms (e.g. organisation development).

The third Section deals with the problems, tasks and procedures associated with external support for innovation in schools. Teacher training is defined as a continuous learning process but, though

improvements are suggested in both initial and induction training, the key stage for helping teachers to be innovative is identified as in-service training, particularly if school-focussed and consultancy-intervention techniques are adopted. Although differing models of education centres are developing, their key tasks are said to be linkage, project support, consultancy, in-service training and research. The network approach, involving groups of mutually supporting schools, is seen as an important development in innovation strategy. Finally, the role of the inspectorate and various possibilities for improving their effectiveness as facilitators and consultants are discussed.

The fourth Section deals with teacher participation procedures and problems. Teachers appear to act mainly as a pressure group in most Member countries with respect to innovations in the overall structure and functions of the educational system. They play a much more prominent part in decisions affecting education centres and in-service training and a simple, five-level structure is suggested as a basis for this. Teachers do not appear to participate as equals in research activities, although this is less true of "development" type research. In-service training, secondment to central agencies and projects and teacher involvement in pilot schemes, etc., are seen as essential for the creation of a climate in which this equality can come about. The importance of teacher participation in decisions affecting external examinations and accountability procedures is emphasized. Current developments in teacher participation at the school level are considered in the context of an authority-structure typology: authoritarian/bureaucratic; consultative; collegial; full-participatory. Even in so-called decentralised systems, it seems that most schools have only moved as far as consultation. Collegiality is probably the goal of many teachers' organisations but they are likely to oppose full-participatory structures involving parents and pupils. Research and theoretical evidence is quoted to indicate that many teachers probably do <u>not</u> want to participate and to demonstrate the difficulties of achieving <u>effective</u> participation. More practical experience and associated research is recommended, including the use of consultancy-intervention action research, to increase teacher motivation and effectiveness.

The fifth Section looks at possible national strategies and concludes that the main challenge is to create appropriate external infrastructures and internal school procedures for the effective management of innovations. Finally, it is argued that, if participation is to become anything more than a slogan, it will have to be defined carefully and specifically in the context of particular levels and tasks.

The Annex briefly reviews some major innovation typologies and models in the overall context of a simple, two-dimensional conceptual framework which highlights four factors: the innovation; the innovator system; the innovating system; the innovation process.

Some of the main policy issues arising from the paper are:

a) What changes in Member countries' national, local and school regulations are required to enable meaningful and effective:
   - curriculum development at the school/local levels;
   - participation in decision making at the school/local/national levels?

b) In particular, how can the role of the inspectorate be modified:
   - by dropping their evaluation function;
   - by increasing their numbers;
   - by retaining their evaluation function while creating new advisory and consultative roles?

c) What kind of external support infrastructure is most appropriate for the needs of each Member country?

d) In particular, how can new forms of in-service training, especially of the school-focussed and consultancy-intervention type, be developed and financed?

e) Which of the four types of internal school authority structure is most conducive to innovation?

f) How can the role of research and development work in training for participation and the management of innovation be developed and financed on national and international bases?

I

INTRODUCTION

This paper takes as its basic assumption that in Member countries there are some significant common trends in recent thinking about successful innovation strategies. Whatever their traditional approach to innovation, a number of Member countries are beginning to recognise weaknesses in the centre-periphery or top-down models, whether of the power-coercive or empirical-rational variety(1). For example, severe doubts are being cast on the assumptions underlying the R.D. and D. model of curriculum innovation. Hoyle (1974 a), puts it thus with respect to British experience:

> "The major problem which has been encountered in the attempt to introduce innovations in curriculum and method has been that

1) These and some other theoretical concepts are explained and discussed in the Annex.

of institutionalisation. British schools have been very eager to innovate, but they have experienced considerable difficulty in sustaining the innovations adopted until ... they have become a fully-functioning part of the social system of the individual school."

Reporting on a literature review and on experience in Canada, Fullan (1972) of the Ontario Institute for Studies in Education, writes:

> "The main conclusion is that the modal process of change whereby innovations are developed external to schools and then transmitted to them has led to no significant change at the user level."

Basing his ideas on case-studies carried out in eight Member countries, Dalin (1973) argues as follows:

> "But is the idea of 'user-proof' products viable in education? We believe - and we feel that our data from all the innovative school studies prove this point - that the readiness of the 'school culture' (the readiness of the community, the managerial group, teachers and students) is more essential than the product."

The trend, then, appears to be towards a serious consideration of alternative and possibly less centralised change strategies. This paper explores the implications arising from this shift in perspective. In Section II, the problems of school-based change are considered. In Section III, the possible characteristics of an effective external support structure are considered. In Section IV, some problems associated with the theory and practice of participation are discussed. Finally, Section V summarises some of the major issues and looks briefly at future strategies.

II

INNOVATION AT THE SCHOOL LEVEL

As we have seen, a significant shift in thinking about the most effective means of bringing about educational innovation has occurred in recent years. The focus is now upon the problems and opportunities experienced by the user, i.e. by teachers and schools. As evidence of this, we may point to the titles of two activities in the OECD Centre for Educational Research and Innovation (CERI)'s programme: "The Creativity of the School" and "School-Based Curriculum Development". Both of these projects share common assumptions with the problem-solving user approach described in the Annex, but they both develop it in a specifically educational context. If schools

are to become problem-solving institutions, what kinds of pre-conditions within the school and in the external environment are necessary? Are there stages which schools have to go through before they can become fully-fledged problem-solving institutions? In this Section it is assumed that there are at least three stages of tasks and difficulties and an attempt is made to distinguish between them; the Section falls, therefore, into three main parts:

a) curriculum development at the school level;
b) the management of innovation at the school level;
c) the problem-solving school.

The focus is primarily upon the problems, management tasks and procedures associated with these three aspects of school innovation. The possible implications for leadership, authority and participation in schools are left for consideration in Section IV.

a) Curriculum development at the school level

In his lead paper for a recent CERI seminar on school-based curriculum development, Atkin (1973) raised two related and basic questions:

> "What distinctive statutory provisions exist in the various Member countries that inhibit or support school-based curriculum development?"
> "Do supervisory personnel, whether employed by local authorities or by national governments directly, see themselves as essentially supportive of school-based change, or do they see themselves as implementors of educational changes designed centrally, or do they see themselves as serving a combination of these roles?"

As one might expect, the superficially clear distinction between centralised and decentralised systems does not, in fact, provide any clear answers to these questions. As Hoyle (1974 a) says:

> "The fact that the British system is relatively decentralised does not, of course, mean that the school is entirely free from external constraints. These arise at the levels of national and local government."

He goes on to argue, however, that although these factors and others, like parental opinion and the examination system, constrain and influence what goes on in schools, their power to coerce is limited. Thus, in Britain, schools do have the opportunity to develop their curricula within these limits. We may compare this situation with that in Sweden, where, according to Furumark et al. (1973):

> "Decisions on the general overall aims of the national curriculum, economic and organisational frames, general guidelines, main goals, subjects to be taught and the main contents of subjects are taken centrally, by politicians and professionals jointly."

However, the authors also report that there are now official moves to delegate "rights of decision to individual schools and local authorities in matters that are now regulated at higher levels". The current debate is apparently about which particular matters should be so delegated. It is clear from the examples of school-based innovation they describe that the allocation of time to different subjects and the choice of subject matter are not ruled out.

Kogan (1973) suggests that the degree of discretion allowed to schools over the curriculum and pedagogy is "the key variable in determining the creativity of the school as between different educational systems". This is a much more helpful notion than the crude distinction between centralised and decentralised systems. For as Nisbet (1973) says:

> "In a centralised system, a school may have more independence, in certain respects, than in a decentralised system which applies detailed restrictions. Where control of the system is concentrated in one large centre which is remote from many of the schools in the system, the detailed supervision or control at grass roots level is more difficult to exercise, so that in practice the schools may have more freedom. In a decentralised system, schools are much closer to the controlling centre and their day-to-day working is more open to observation - and therefore sometimes to control by the local authority."

According to McMullen (1973 b),

> "Increasingly both administrative and traditional constraints on autonomy are being loosened. In the former cases, two marked tendencies can be seen: to replace detailed programmes by general guidelines; and to set aside part of the time allocated to the central programme for the school to develop as it wishes. In systems where power is decentralised to the school, examinations become more flexible - often based on the school's own curriculum ...."

These are, of course, highly problematic issues and we do not have adequate comparative data on which to base firm or detailed conclusions. We can, however, conclude that no school is autonomous: they are all subject to varying types and degrees of constraint, within which they should be able to develop their curriculum. What is less clear is the extent to which the prevailing climate of

political and professional opinion encourages or discourages schools to identify these constraints and then to innovate within them in an active and systematic fashion.

A second, important constraint on school-based curriculum may have its origins in unfavourable teachers' attitudes. Let us consider briefly the demands that current innovations are making upon teachers and the way in which the teachers view them. In his general report on the OECD project, "The Changing Role of the Teacher and its Implications", Shipman (1974 a) summarises some of the main trends in Member countries as including: the lowering of the entry ages; the raising of the leaving age; the breakdown of the teachers' traditional authority role; team-teaching; mixed-ability or non-graded classes, individualised learning; inter-disciplinary studies; enquiry methods; open-plan architecture; community schools; teacher involvement in the planning and implementation of new curricula; continuous assessment; differentiated staffing; parental involvement. It is not suggested that these innovative trends are equally apparent in all Member countries nor, indeed, that they are proceeding evenly within any one country. Nevertheless, educational leaders and teacher trainers are increasingly stressing the desirability of such changes and thus teachers cannot but be aware of the implied expectation that they should adopt the innovations. Yet, taken together, these changes imply a radical change in the role of teachers. What, if anything, do they have in common?

A powerful and challenging theoretical perspective on this question has been offered by Bernstein (1971) who suggests that these innovations represent a change in the educational "code" or deep-structure of the school. On this argument, their essential and common characteristic is a change, a blurring or breaking down of boundaries: for example, the boundaries between subjects (interdisciplinarity); between teacher and pupil (enquiry methods); between teachers and non-teachers (differentiated-staffing patterns); between school and community (community and open schools). In total, the shift may be seen as movement from an open to a closed system or structure. This brief outline inevitably over-simplifies a complex thesis in which Bernstein tries:

> "....to make explicit the relationship between educational codes and the structure of power and principles of social control. Attempts to change or modify educational codes will meet with resistance at a number of different levels irrespective of the intrinsic educational merit of a particular code.... I suggest that the movement away from collection to integrated codes symbolises that there is a crisis in society's basic classification and frames, and therefore a crisis in its structures of power and principles of control. The movement from this point of view

represents an attempt to declassify and so alter power structures and principles of control; in so doing to unfreeze the structuring of knowledge and to change the boundaries of consciousness. From this point of view integrated codes are symptoms of a moral crisis rather than the terminal state of an educational system."

We do not have to agree with Bernstein about these wider and deeper implications to recognise that the various changes are creating enormous uncertainties for teachers. It is against this background that we must consider proposals for the creation of opportunities for teachers to participate effectively in curriculum development at the school level. We must not underestimate the effects on teacher morale of radical, and potentially threatening, cumulative innovation.

Assuming that teachers and schools do decide to develop their own curricula, what kind of resources will they require? McMullen (1973 b) considers the following to be essential: a team rather than an individual; substantial time during the working day; a working place; access to outside resources, e.g. libraries; adequate finance; close contact with and support from external administrators. He also urges the desirability of external professional consultancy help.

Clearly, teachers also need to be familiar with the underlying theory and technology of curriculum development; teacher training at both the initial and in-service stages has a vital role to play here. The basic development models are well known. A typical cyclic model (Wheeler, 1967) has five broad stages: situational analysis; goal formulation; programme formulation; programme implementation; evaluation and cycle re-start. McMullen (1973 b) uses a variant on this but, as he says, he has "never seen a group of teachers follow this logically or consistently". Nonetheless, he is surely right to argue that this does not necessarily diminish its value: the model can still act as an instructive point of reference and clarification. Using this approach, McMullen argues that a school can both create new parts of a curriculum and adapt materials from outside, but he points to some strictly practical qualifications:

"Given the time, energy and resources of a normal school, the quantity and scope of curriculum development possible is limited in normal conditions. We are not able to produce a completely new school curriculum: it is very difficult but not impossible to create a curriculum for a new subject or integrated subject area. In practice, we are more likely to be developing parts of a subject curriculum...."

Evaluation is an important stage in the process model and Kelly (1973) offers a framework for evaluating school-based

curriculum development in which he identifies three categories of evaluation: input, process and output. He also considers some of the key issues involved in deciding which role teachers can play in such evaluation, the kinds of outside support they need and the kinds of data-collection techniques which are appropriate in a school-based context. At present, apparently, even the most innovative schools rarely use formal evaluation. Analysing case studies of five such schools (in England, Norway, Canada, Denmark and Finland), Dalin (1973) concludes "there is no systematic use of research on evaluation methods. All evaluation is done in a subjective and informal way". He identifies two purposes of evaluation: first, to help the participants learn how their efforts are progressing; second, to develop materials, etc., for dissemination to other schools. He argues that different evaluation strategies are needed for each of these and certainly it seems likely that a more formal and systematic evaluation is needed for the second purpose.

b) The management of innovation at the school level

A distinction has to be made between the process of curriculum development and the process of curriculum innovation. Clearly, the two will often overlap but, nevertheless, confusion about their essential differences can have serious practical consequences for the ultimate fate of an innovation. The point is most simply made by reference to an externally produced curriculum 'package' which, when it arrives at a school, is already 'developed'. It does not, however, become an integral part of the school's curriculum until the innovation process has been successfully carried through. Similarly, even though a curriculum 'package' is developed internally, it still has to negotiate many obstacles before becoming successfully institutionalised into the working life of the school.

It would, therefore, be inappropriate to look to a curriculum development model as a guide to the management of the innovation process. As is made clear in the Annex, the latter is very complex and involves three main factors - the innovation, the innovator and the innovating system - all of which interact with, and are changed by, each other during the time period (factor 4) of the innovation process itself. An action model which is to be of practical use to teachers will, accordingly, have to explore and articulate these factors in considerable detail. In particular, it will need to make clear the implications of regarding both the innovating system (e.g. the school) and the innovator or change agent (e.g. an outside change team) as social systems, any part of which (e.g. the pupils' parents) may be seriously affected by an innovation in another part (e.g. the introduction of compulsory homework for younger children). At present, we do not have such a model but we do have some

relevant experience, some of it research based, from schools engaged in innovations. (e.g. CERI, 1973, Vol. III; Smith and Keith, 1971.)

In the United States, Gross et al. (1971) made an intensive case study of an inner city elementary school which was carrying out a major organisational change in the role of the teacher. Whereas, prior to the change, the school had been relatively formal and traditional in its teaching methods, the innovation aimed at encouraging the children to become self-directed learners and viewed the teacher as assisting them to learn according to their own interests and as allowing them the maximum freedom in choosing their own activities. The idea for the innovation originated with the Director of an Educational Change Bureau in the city and both the principal and teachers agreed to try it out. According to the authors, therefore, there was no initial resistance on the part of the staff to the innovation. Nevertheless, six months after its introduction, the researchers concluded that the degree of implementation of the innovation was minimal.

The reasons which they identified for this lack of success were:

i) the teachers did not have a clear understanding of what was expected of them in their new role;
ii) in any case, they did not have the necessary skills to carry out their new role;
iii) they did not have the required materials and equipment;
iv) the organisational arrangements in the school (e.g. the inflexible timetable) were incompatible with the innovation;
v) there were no feedback procedures to correct these deficiencies;
vi) as a result of these unsatisfactory experiences, resistance to the change developed amongst the staff.

Gross et al. argue that it is a management task to plan, support and monitor the innovation process and, therefore, that it is a management responsibility to clarify the teachers' role definition, to provide access to training for the new role, to ensure that the necessary materials and equipment are available, to modify the organisational arrangements and, finally, to devise feedback mechanisms to identify these and other difficulties as they arise, thus minimising the possibility of resistance developing during the implementation process. They conclude that the task of management is of critical importance in all of these activities.

Reporting on an Integrated Studies project in England, Shipman (1974 b) describes the pressures on the participating teachers to revert to their traditional role of subject teaching.

"The teachers knew that there was a clear career structure for this established subject teaching. It was consolidated by

external examinations, expected by parents and prepared for in training."

Shipman, like Gross et al., also concluded that the period of most strain for the teachers occurred after the initiation stage. Teachers had, therefore, to be prepared to invest enough time and effort to reach the threshold point at which they achieved the satisfaction of, for instance, having important visitors and reading articles about their work in the press. Shipman's view is that the source-providing role of the school and the local authority (as well as the project) was critical. He goes on:

> "The importance of support for the innovating teachers can be seen in the importance of involvement by senior members of staff and of positive attitudes by teachers not directly involved. This was a management problem for the head teachers."

Shipman's use of an investment model as a conceptual framework highlights the importance of rewards and incentives to teachers engaged in innovation. This was one of the issues selected for further study on completion of the first stage of the "Creativity of the School" project (CERI, 1973 a), later work recognising that rewards can operate in five areas: status, working conditions, career structure, intrinsic satisfaction and financial advantage. A full account of these areas would take us beyond the scope of this paper, but a number of them are worth exploring a little further because of their direct relevance to the management of innovation (see Pincus, 1973, for an extensive discussion of incentives). Becher (1974) is obviously right when he argues that it is simply not feasible to provide higher salaries, better promotion prospects and more free time for all teachers as a general strategy for promoting innovations. However, he is also surely right to argue that it is an important innovation management task to recognise both that the absence of these factors may act as a disincentive and that they can be used selectively as incentives. We can also point to other equally concrete management tasks. Teachers in the United Kingdom draw a pointed analogy with economic inflation by referring to "galloping innovation" when they are confronted with yet another set of new project materials. The simple fact is that many teachers are suffering from "innovation fatigue" (Hoyle, 1970). The school management task here is clearly to ensure that the input evaluation procedures provide appropriate information about the readiness of staff to undertake a new innovation.

There are other, rather more subtle and intangible, factors which may act either as incentives or disincentives depending on the climate in the school. We have seen from the arguments of both Bernstein and Shipman that teachers face considerable uncertainty

from many innovations and, moreover, that they may have to invest a great deal of time, effort and personal status in them with no guarantee of success. If we wish teachers and schools to be innovative, then one prerequisite may well be a climate in which a number of things are openly recognised and discussed: first, that problems, many of them predictable, are bound to occur during the trial and implementation stages of an innovation; second, that mutual support by all colleagues can be crucial during such crises; third, that failure to succeed must be an acceptable outcome (Nisbet, 1973). A fourth factor is stressed by Sarason (1971) in the context of an innovation in new maths in the United States. He points to one of the fundamental errors made by the workshop trainers as being a:

> "lack of sensitivity to the plight of the teachers - they were being asked to learn procedures, vocabulary and concepts that were not only new but likely to conflict with highly overlearned attitudes and ways of thinking .... no-one formulated the problem as one requiring teachers to unlearn and learn."

Moreover,

> ".... Many of the teachers were unable to voice their uncertainties and lack of understanding."

Sarason goes on to generalise about the current culture of the school in America (and presumably this is true of some other OECD Member countries, too), that ".... it is extremely difficult for a teacher to state to the principal, other teachers, or supervisors that she does not understand something". One consequence of a lack of openness, supportiveness and readiness to accept failure is the "facade" phenomenon (Smith and Keith, 1972), i.e. the situation in which teachers, schools and inspectors present an image to each other and to outsiders which suggests that an innovation is working extremely successfully, whereas objective observers report differently (Bealing, 1973; Goodlad, Klein et al., 1970). We may conclude that a critical school management task is to create an appropriate climate in which participants feel confident enough to admit they do not understand, or are failing; only in this way will they actually learn enough about the innovation to implement or reject it.

The management of innovation also involves taking account of the various external constraints in the wider system of which the school is a part. Dalin (1973), reporting on five innovative schools, says that community expectations are acting as a powerful constraint on three of them:

> "We have observed that in the case of Thornlea (Canada) and Tapiola (Finland), schools in a typical middle class environment, parents originally were positive towards innovations but

have later on become concerned about academic standards. At Countesthorpe (England) with a socio-economic environment representative for the population as a whole, it is the middle-class parents who have been most concerned with academic success."

Dalin goes on to question the assumption, made by teachers in the innovative schools, that external examinations are a barrier to innovation: he argues that they are, in fact, an expression of expectations in society, for example held by parents and employers, about the way in which schools should function. Generalising from examinations to administrative regulations, he concludes that:

> "It is a misunderstanding to think that a decrease in administrative 'constraints' necessarily improves the school's capacity to innovate. A careful analysis of the function which each regulation plays in relation to expectations in society is necessary .... (otherwise they) .... may well materialise in a form which is more problematic ...."

Finally, in this part, we may note a paradox about examinations. Although they are usually regarded as a constraint, they can also be used as a powerful incentive to change. This is true, as Dalin (1973) notes, at the national level but it can also be true at the school and local level. In England, the Geography 14-18 Project has adopted a strategy of encouraging participating schools to devise their own examination, in consultation with an Examining Board, in order to provide the teachers with a powerful incentive to institutionalise the innovation. (Reynolds, Tolley and Hickman, 1974).

c) <u>The problem-solving school</u>

Although a distinction has been drawn above between curriculum development and the management of innovation, there was no intended implication that the one was a more difficult or complex task than the other. Rather, the intention was to demonstrate that, although the two tasks are sometimes confused (possibly because, in a school-based context, they sometimes occur simultaneously), they actually require quite distinct management strategies. However, when we come to consider the nature of the problem-solving school, it is clear that, by definition, we are confronted by a much more complex concept involving correspondingly more difficult tasks and requiring a more comprehensive management policy. A school's creativity was defined by the CERI "Creativity of the School" Project as:

> "its capacity to adopt, adapt, generate or reject innovations.... The point at issue, therefore, is not just a matter of improving the receptivity of schools to planned innovation from a central

authority: it is assumed that we want to improve the capacity of the school itself to deal with innovation." (Nisbet, 1973).

In essence, the problem-solving school may be thought of as a self-monitoring, self-renewing system, which is, therefore, concerned with all aspects of a school's life, including the various curriculum development and innovation tasks.

Just how feasible is the concept of creativity? Are there schools which behave in a creative fashion, using systematic, problem-solving procedures as part of a self-renewing process? The evidence from the case studies quoted above and informed, professional opinion suggests that few schools could, at present, be described in this way. It is, however, important to bear in mind the dangers of generalising from case studies of single schools: there are, in fact, very few research findings to guide us. Moreover, the concept is a relatively new one which flies in the face of traditional ways of thinking about innovation: Member countries have, in general, paid more attention to centre-periphery strategies and this new approach is relatively untried. Nevertheless, there is some evidence that schools can and do adopt systematic problem-solving strategies. For example, the Castle School, which is a medium-sized comprehensive school near Bristol, England, uses a committee procedure to monitor its overall progress, to generate new ideas and to devise ways of putting them into effect. The number of committees has varied from three to five and all members of staff may join them. Their functions, too, have varied but they essentially cover broad inter-disciplinary and inter-department topics like curriculum development and links with the community. Each year the whole staff attend a two-day internal conference, partly held in school time, to consider a theme which has been chosen by the committees as reflecting their interests in the coming year. At the start of the 1973 academic year, for instance, the theme was resource-based learning. The committees meet frequently and, in order to tackle a particular problem, may go on study visits to other schools with related interests or consult informally with staff at the University School of Education. It is important to note that their problem-solving "technology" is relatively unsophisticated but this is also a strength since a pragmatic approach of this kind is probably more generalisable to other schools. One can, however, not be so confident that one key factor - the leadership style of the head - is similarly generalisable.

Practical experience of this kind does provide encouraging evidence that the creative school concept is feasible and the projected introduction of teacher-tutors in English schools lends support to this conclusion (Eggleston, 1974). Although the exact functions of the teacher-tutor is the subject of debate, as originally

conceived he would have a responsibility for advising colleagues about in-service training opportunities and needs. There is growing interest in the United Kingdom in the notion of schools devising their own staff development policies to meet the needs both of individual staff and of the school as a whole (Pratt, 1973). In such a context, and bearing in mind the conclusions reached by Gross et al. (1971) about the importance of training staff for new roles, it is easy to see that teacher-tutors could become key figures in a school's general, problem-solving strategy.

The problem-solving school idea would, if implemented, represent a major innovation: what kind of resources and support would it require? First, it would require a significant shift in perspective in all Member countries and, in some cases, changes in the regulations may be necessary to allow greater autonomy in curriculum matters. Next, adequate procedures will have to be developed and learned. The basic problem-solving model described by Havelock (1969) (see Annex) is a dynamic and cyclic one with six main stages: felt need; problem diagnosis; search for resources; retrieval of resources; fabrication of solution; application of solution. Stufflebeam (1971) describes an evaluation model in which he identifies four types of evaluation: context; input; process; product. The overall model is intended to assist decision making and is particularly relevant to the problem-solving school concept. Finally, we can look to the organisation development (O.D.) techniques as described by Schmuck (1973) [see Section III, part (a)]. It seems clear that O.D. holds great promise as a source of theory, technology and experience which are directly relevant to the business of strengthening the problem-solving capacity of schools.

III

EXTERNAL SUPPORT FOR SCHOOLS: TASKS AND PROCEDURES

In this Section consideration is given to some of the characteristics of the external infrastructures which have been created in Member countries to support the innovative work of teachers and schools. As in Section II, the emphasis is on problems, tasks and procedures. The Section falls into four parts:

a) teacher training in the initial, induction and in-service phases and with special reference to consultancy intervention strategies;
b) education centres including local research and development work;
c) leagues, networks and consortia;
d) the inspectorate.

a) Teacher Training

There is general agreement that if teachers are to participate effectively in educational innovation, they need to be equipped and supported by appropriate professional training facilities at both the pre-service and in-service stages. Moreover, it is also argued that training for teachers should be seen as a continuous process with the implication that teachers should become accustomed to seeing themselves as learners throughout their professional careers. According to Noel (1974) this should lead to the development in teachers of a "continual adjustment to reality and, therefore, the capacity for change". Although there is some agreement about this concept, it undoubtedly gives rise to some significant problems and issues. First, there are obvious financial and logistic difficulties associated with continuing training for all teachers in the system. Second, there are pedagogical and technical problems concerning the definition of the content of the various phases of teacher training and the articulation of these various phases into a coherent whole. For instance, there is the problem of attempting to specify in some detail the kind of skills which a beginning teacher ought to possess at the end of the initial training period and those which would more appropriately be learned during the various stages of in-service training (e.g. during the induction year).

If initial training is going to equip teachers to participate in innovation it seems that certain changes in its content, context and structures will be necessary. Thus, with respect to France, Noel (1974) argues that the concentration on the academic side will have to be reduced in favour of psychology and epistemology. He envisages teachers becoming:

> "more accustomed to consider content not only for itself by reference to the one university discipline which it concerns but also in the light of its relative significance as a factor in general education, as well as from the point of view of the problems of educational psychology raised by students' access to this content".

In the United Kingdom some progress in this direction is evidenced by the increasing concern of university psychologists, social psychologists and sociologists with the school curriculum and epistemology. The most significant examples of this are to be found in the Open University Educational Studies courses which are proving to be very influential on initial teacher training practice. In the General Report of the OECD Education Committee project on "The Teacher and Educational Change", Shipman (1974 a) refers to the need "to accelerate the introduction of evidence from the social sciences" in order to "enable the student to appreciate the influence of

different backgrounds on children's performance in school", and, more generally, to remove "the cultural myopia of teachers". The breakdown in the traditional approach to teaching means that it is no longer possible, except in certain basic subjects like reading, to train a teacher in particular techniques applicable to set classroom situations; new strategies are needed.

The Geography 14 - 18 Project in England has organised workshop seminars for initial training geography lecturers to encourage them to adopt the project's innovative approaches with their students. It is important to recognise that this is not merely part of a materials dissemination strategy. The key feature of this particular project is its grounding in a theory of curriculum reinterpretation which has led to less emphasis on materials production. Reynolds (1972) argues the need for exemplar materials which the teacher is intended to adapt and develop in relation to his own particular situation. The latter is explicitly identified as a curriculum social system and the project's strategy is to enable teachers to become aware of the constraints and opportunities inherent in such systems in order that they may sustain the curriculum renewal process themselves and in co-operation with colleagues and consultants from the curriculum social system. In this way the initial training lecturers are being encouraged to introduce their students to these strategically crucial concepts and thus to equip them to engage more effectively in innovation when they become teachers.

These general and fundamental professional skills and knowledge areas have to be identified and learned: they will probably include curriculum analysis, teaching strategies, self-monitoring and innovation theory, all of them aimed at equipping teachers to be creative and dynamic decision makers. There is clearly an urgent need to develop appropriate teacher-training materials in this context and some relevant work has been undertaken in OECD Member countries (e.g. in the United States as part of the government-funded Model Teacher Education Programs, Joyce, 1968, in the United Kingdom, Taylor W., 1973 a, and Sutton and Haysom, 1972).

It is clear, too, that the traditional contexts and structures of initial training will require modification. These skills can often be most appropriately learned in a clinical or on-the-job context and therefore classrooms and schools provide the most effective base both for learning them and for demonstrating the relevance of theory to practice. As part of the Harvard University "Training and Teacher Trainers" (T.T.T.) Project, selected student teachers worked alongside teachers in schools to develop various innovative curricula and organisational settings. Advanced students of supervision and curriculum development joined in these innovative clinical teams as student supervisors who were in turn supervised by the leader

of the Ph.D. supervision programme. The aim for the student teachers was to train them in innovative techniques in the real or clinical situation of the school.

Whether they are able to sustain their innovativeness will depend, quite apart from their initial training experience, upon the quality of the professional support and guidance available to them as teachers. This is especially true of the first or induction year of teaching. Various research findings in Member countries suggest strongly that teachers' educational opinions 'conservatise' as a result of their experience during the first year of teaching. Hoy (1968) describes this as a move towards a 'custodial' approach which he attributes to the socialising influence of the beginners' colleagues. Morrison and McIntyre (1967), in a study of first year teachers, report significant decreases in 'Radicalism', 'Naturalism' and 'Tendermindedness' scores for graduate women, significant decreases in the 'Radicalism' and 'Tendermindedness' scores for non-graduate women and no significant changes for graduate men: thus, women tended to conservatise more than men. This general phenomenon is well known and in this context it implies that beginning teachers are too inexperienced and insecurely based to carry out any change agent role. This is confirmed by Corwin (1972) who concluded that experienced teachers were always able to maintain their traditional procedures in the face of a systematic and externally supported 'invasion' by a large number of young, creative, liberal but inexperienced interns. Moreover, even with a very well-supported induction process, it seems likely that most beginning teachers will continue to be too preoccupied with their immediate problems of personal survival and growth to be able to act in their first year at least as change agents. The challenge is to ensure that their enthusiasm and innovative ideas are encouraged rather than submerged during the first year.

The first year of teaching is of considerable interest in Member countries, for instance in Australia (Maddocks, 1974) and Switzerland (Weibel, 1974). It has received particular attention in the United Kingdom (see Taylor and Dale, 1971) where it is now government policy that, throughout their first, induction year, all probationary teachers should be released for the equivalent of one day each week for in-service training; that they should have only 75 per cent of a normal teaching load; that teacher-tutors should be appointed and trained to carry out this training task, drawing on resources from their own schools and from a network of professional centres (see Eggleston, 1974). Prior to the introduction of the induction scheme on a national basis in 1976, pilot schemes are being mounted and the University of Bristol School of Education will promote and co-ordinate the monitoring and dissemination aspects of these schemes. As a result of a previous action research project,

Bolam (1973) recommended a seven-stage structure for these induction programmes and emphasized the need for individualised, practical help with the beginning teachers' own classroom and school problems. He also concluded that such schemes may well slow down the "conservatisation" process described above, which occurs during the teachers' first year.

Nonetheless, although it is important that student teachers should receive adequate and appropriate initial training in the problems and techniques of the management of innovation and that beginning teachers should receive adequate and appropriate support and continued training, it is clear that the major training support tasks in this field lie in the in-service stage (see, for example, Shipman, 1974 a; Torpe, 1974; Marklund and Gran, 1974; Eggleston, 1974). In this context, we may distinguish between two broad types of <u>in-service education and training</u> (INSET):

i) INSET to meet the needs of individual teachers;
ii) INSET to meet the needs of the education system.

A major impetus for INSET has always sprung from the personal career and education needs of individual teachers. In some countries, notably the United Kingdom, teachers, employers and INSET providers (e.g. colleges, universities, etc.) have in the past adopted informal and largely implicit procedures for identifying these needs. In centralised countries, INSET initiatives have more often been associated with major national reforms. For example, in Sweden, substantial retraining efforts followed the introduction of reforms in the 1960s and it seems likely that a similar response will be made to the proposed reforms in the internal work of the school (Sparrman, 1974); in Belgium, recent reforms of primary and secondary education made it "urgently necessary to establish continuing teacher training, in the form of further training and re-training" (Breuse, 1974). Even in the United Kingdom the principle that major national reforms must be accompanied by re-training programmes is now increasingly accepted (see Eggleston, 1974, especially on the need to train teacher-tutors for the proposed teacher induction schemes). Furthermore, recent experience in many Member countries of research and development projects, particularly in curriculum development, has made it plain that INSET must be an integral part of any dissemination strategy.

Yet although the impetus for INSET has sprung from these <u>two sources</u> (i.e. teacher needs and system needs), <u>one model</u> of INSET has predominated in most Member countries. This model, whereby individual teachers withdraw from their school to undergo training and then return to their school, is probably well suited to meeting the personal career and education needs of individual teachers, though even this will not always be true. What is becoming increasingly obvious is that the model is by no means as well suited to

meeting the needs of the education system at its various levels since it ignores the problems faced by teachers when they return to school and seek to implement their new ideas. Moreover, the traditional INSET model is particularly inappropriate for helping schools to become creative or problem-solving institutions. Taking these assumptions as his starting point, Hoyle (1974 a) advances four propositions:

i) that more INSET should be linked with specific school innovations;
ii) that more INSET should focus on functioning groups (e.g. a departmental team, the heads of department or a whole staff);
iii) that schools should establish their own staff development programmes;
iv) that schools should receive support, including consultancy, for their staff development programmes from local professional centres.

It is clear that thinking in a number of OECD Member countries is moving in this direction. This appears to be the case, for example, in the Netherlands (Doornbos and Geeras, 1974), France (Noel, 1974), Australia (Maddocks, 1974) and Spain (Costa Ribas, 1974).

It is perhaps worth making clear that it is not being suggested that the traditional approach to INSET should be dropped; merely that the balance should be redressed somewhat in favour of system-focussed approaches. Nor is it the case that school-focussed INSET must necessarily take place in the school or be provided by the school (see Glatter, 1973). Nor should it be confused with normal staff meetings and discussion for, although these may serve as INSET, that is not their prime purpose. This could be of practical significance since it may be necessary in the future to identify those types of INSET that both qualify for and count against an individual teacher's entitlement to release for INSET. In Sweden, according to Sparrman (1974), up to five study days a year are compulsory for each teacher and the local school boards have the option of cancelling lessons to allow teachers in one school to take their leave together. This kind of logistical device is important, for it makes possible school-focussed INSET without encroaching on the time allowed for a teacher's own INSET needs.

We may usefully distinguish between two types of approach to school-focussed INSET. The staff conference approach may involve either the whole staff or a group (e.g. departmental team) in lectures and discussion sessions, possibly with outside "expert" contributors. This is certainly an advance on the traditional approach, and experience in England indicates that staff attendance and

commitment to it are high. An alternative, and much more radical, approach is essentially characterised by the use of outsiders as consultants and may be termed an intervention or consultancy strategy. According to Havelock (1969), a key distinguishing characteristic of the consultant is his non-directive stance:

> "When someone comes to someone else for 'advice' what he needs first and foremost is an understanding of what his problem is and how he is reacting to it. The consultant, therefore, should allow the consultee to tell his story, not so the consultant may be informed, but so he himself may be informed."

If the consultant adopts a directive or prescriptive stance, then, on this definition, he ceases to be a consultant and becomes a "trainer" or "conveyor" in Havelock's terms. It is for reasons such as these that inspectors may find it difficult to be consultants in the pure sense: the administrative dimension to their role [see part (d) below] accustoms both them and the teachers to a directive stance for inspectors.

The consultant will usually focus his attention on only one of two principal targets: tasks or processes. The task-oriented consultant will be concerned with, for instance, curriculum development, pupil grouping, pupil evaluation or school organisation and will adopt an empirical-rational strategy. The process-oriented consultant will be concerned, for instance, with the processes and skills underlying problem-solving, communication or decision-making in the school and will adopt a normative-re-educative strategy. Relatively little has been written about the task-orientated consultant but a considerable amount of empirical and theoretical work has been carried out in connection with the process consultant. As Havelock (1969) points out, there are two distinct traditions in consultancy - the "mental health" and the "change agent" traditions. Although both approaches have been used by industry in Europe, there is little experience of their application to schools, except in the United States. However, Richardson (1973) provides a detailed and fascinating account of her consultancy over a period of three years with Nailsea School, near Bristol, England. Her study provides some invaluable insights into the consultancy role, not least because all the staff involved agreed to be identified by name.

A substantial amount of work in the "change agent" tradition, stemming to a large extent from the pioneering work of Lippitt et al. (1958) has been done in North American school systems. One of the most striking innovations has been the use of organisation development (O.D.) as a normative-re-educative intervention strategy for strengthening the organisational health and problem-solving capacity of schools. Writing of his experience in the use of O.D. in the

United States, Schmuck (1973) points to the failure of innovative strategies that ignore the organisational contexts of the attempted improvements, i.e. the complex social system of the school. He defines O.D. as a "planned and sustained effort to apply behavioural science for system improvement using reflexive, self-analytic methods". Thus, O.D.:

> " .... involves staff members themselves in the assessment, diagnosis and transformation of their own school. Rather than simply accepting diagnosis and prescriptions from an outside 'technocratic' expert, organisation members themselves, with aid of O.D. consultants, examine current difficulties and their causes and participate actively in the reformulation of goals, the development of new group process skills, the re-design of structures and procedures for achieving the goals, the alteration of the working climate of the school and the assessment of results."

He identifies seven key stages in the typical O.D. sequence as:

> " i) Initial contact with the administrator and the board of education to gain general approval for the intervention.
> ii) Commitment from the entire faculty about the intervention. During discussions with the faculty agreements are made about goals, time and energy; the consultant makes clear that he is consultant to the entire faculty, not just to one segment of it, such as the administration.
> iii) Data-gathering concerning existent organisational processes of the school.
> iv) Feedback of data to the target school.
> v) Establishment of the specific goals of the O.D. intervention for this faculty.
> vi) The training programme is implemented.
> vii) Data are gathered to ascertain effects of the training while it is proceeding. Decisions about termination are guided by these data and made jointly between the consultants and the participants."

The training programme itself consists of skills (e.g. paraphrasing, group-convening, diagnosing), simulation exercises and procedures (e.g. the "theatre-in-the-round" procedure for sharing ideas and observations). The rationale for these techniques and detailed descriptions are contained in Schmuck and Miles, 1971 and Schmuck et al., 1972.

As an intervention strategy, O.D. has a great deal of potential relevance to the business of helping teachers to participate effectively in innovation. However, in spite of the fact that it is now

being used in various parts of North America, for example in Ontario, Canada (Loubser, Spiers and Moody, 1973) and in Louisville, Kentucky (Walker, 1974), it is by no means clear that all teachers, schools and Member countries will find it acceptable. It may be that most teachers are more likely to be attracted to task-orientated consultancy because they believe problems to do with the curriculum and organisation of the school to be their central concern. But, recognising the strength of the O.D. critique of such approaches to innovation, it would follow that a consultancy team might take these tasks as its starting point and gradually open up the possibility of using process consultancy, including O.D., in order to ensure the effective implementation of the particular innovation and to strengthen the school's capacity both for problem-solving and for handling future specific innovations.

b) Education Centres

One of the most significant developments in the creation of an infrastructure for the local support of innovations has been the growth of various types of education centres in OECD Member countries. In the Netherlands there are about thirty regional centres for educational innovation and guidance which aim to develop direct working relationships with the schools in a region (Doornbos and Geerars, 1974). In Portugal, it is planned to establish Regional Centres of Permanent Support (Luz Carneiro, 1974). In Australia, the Federal Government is funding the establishment and maintenance of teachers' centres ".... to provide a base from which professional support to teachers can be provided on a continuing basis and to be a centre for social as well as professional activities." (Maddocks, 1974.) More specifically, their main functions are identified as to:

"a) give teachers a setting within which new objectives can be discussed and defined, and new ideas on content and methods in a variety of subjects can be aired;
b) plan, implement and test curriculum changes;
c) keep teachers informed about research and developments in progress elsewhere; and
d) focus on the special interests of local teachers."

These education centres do, as their different names imply, vary considerably from country to country. First we may consider the English teachers' centres, over 600 of which are now established (Taylor, L.C., 1975). These centres vary a great deal in terms of size and the scope of their activities but, nevertheless, a number of characteristic features are identifiable. Typically, they aim to provide a local professional support facility for all the teachers in their catchment area. They offer in-service training courses,

library, technological and reprographic resources, information on national projects, local curriculum development workshops and a social meeting place. They are funded by the local education authorities whose inspectorate usually work closely with them. They are often located in converted schools and occasionally in converted, large houses. They have a warden or leader (sometimes part-time) and may also have a deputy warden, technical and secretarial staff. Most are multi-subject but some do specialise in particular subjects. They usually work closely with central agencies like the Schools' Council by acting as disseminating agencies and there are plans to strengthen this aspect of their work by encouraging some to specialise in the continuing support of the work initiated by projects (see Schools' Council, 1974). They are run by committees of local school teachers and other local professional educators: they generally do not involve parents or the wider community in their activities. In general, they are popular with primary teachers but secondary teachers tend not to use them very often.

Up to now teachers' centres have generally not had close relationships with colleges of education or university departments of education. However, following recent government policy statements (see Eggleston, 1974), this situation will change with the introduction of the professional centre concept. Although the position is not yet clear, it seems likely that a number of models for professional centres may emerge. One model will simply involve the re-designation of the larger teachers' centres, some colleges of education and, possibly, some university departments of education as professional centres. A second model might involve the identification of appropriate local/regional resources which could go to make up a professional resource network. These resources might include a small teachers' centre, a group of staff from a college or university, local authority advisers and H.M.I., and might be co-ordinated by a professional network co-ordinator. Broadly speaking, the intention is that professional centres and networks should undertake similar activities to the present institutions albeit in a more developed and systematic fashion. However, these developments could facilitate the introduction of innovative support structures: Hoyle (1974 a) argues that they should undertake linkage (i.e. between school and school, school and research project, teacher and teacher, teacher and information source, etc.); project support (i.e. after the withdrawal of the project team); consultancy; in-service training.

Second, there is the highly innovative approach in New York City, United States (Gaines, 1974). The idea of the Learning Co-operative apparently was born out of the 1968 crisis situation and was finally established in 1971 with five core professional

staff including the director. The Co-operative had five main aims: to help identify and disseminate useful practices; to help develop new learning models; to help create linkages between teachers, schools and districts; to help construct new forms of staff development; to help attract outside funds for innovative programmes. The Learning Co-operative is defined as consisting of "the voluntary co-operative effort among the community school districts, their constituents - teachers, students, parents, administrators, community people - and individuals and groups from the private and public sectors." The job of the core staff is to provide ".... support for these efforts. Organisationally an arm of the Chancellor's office, staff function in the field serving as a catalytic agent ...." In addition to its emphasis on co-operation, major strategies have been to highlight successful practice and schools, to link up outside agencies (e.g. the national parks service; business organisations) with the schools and to design on-the-job staff development programmes. Some of the principal needs identified included consultancy type help with innovation, for advocacy and for fund-raising. The Co-operative has apparently proved so successful that it has now been developed and institutionalised within the New York system.

A third model for an education centre is provided by experience in Malmo, Sweden (see Teschner, 1973; Dalin, 1973; and Rodhe et al., 1974) where there is considerable emphasis on research and development. Following the centralised reforms of Swedish education, the National Board of Education agreed, in 1964, to recognise and fund the Malmo Educational Development Centre. Its main aims were (Teschner, 1973): "(to find) practicable ways of giving effect to the intentions of the educational reforms proposed or already decided .... (and) to facilitate the progressive revision of the curriculum." Experimental innovations which have been introduced are mainly curricular ones and include training in study techniques, team teaching and work with variable teaching groups, the development of learning materials and curriculum revision. Two hundred teachers and head teachers are members of subject groups whose job it is to identify curricular problems and procedures within the national curriculum pattern. Their suggestions are considered by a Planning Group and then by an Experiment Committee. After the experiments have been conducted and evaluated, the results are disseminated both within Malmo and beyond, via in-service training courses. The Centre is organised directly under the City School Office and works in close association with the Malmo School of Education which has also carried out related research projects. Other Member countries have also developed local research procedures. In Japan, for example, in 1970 there were approaching 400 local educational research institutes (Arai, 1974), supervised and financed by local boards of education.

They usually aim to improve and develop their local education systems through research, in-service training, counselling, providing information on innovations and through a book and visual aids library.

It seems clear that education centres are already carrying out some important tasks and that their potential value is even more important. If Havelock (1969) is right (see Annex) then they can form a vital part of the centre-periphery approach to innovation, providing linkage with central project teams, support for local take-up and in-service training on the traditional model. Moreover, they can also form an important part of a decentralised innovation strategy by encouraging and supporting local initiations. Finally, they can form the base for consultancy teams seeking to promote the support problem-solving or creative capacity of schools. What is far from clear, however, is just how the various institutions in Member countries compare along certain critical dimensions: aims; functions, especially with respect to research; facilities; structure; funding; staffing; catchment/target area; relationships with central development agencies, policy makers, administrators, other local/regional agencies, schools and local communities; decision-making procedures; teacher usage; effectiveness. Comparative research on these factors is essential if the most effective strategies are to be identified. (c.f. Taylor L.C., 1975.)

c) Leagues, Networks and Consortia

Variations of the local research and development or teachers' centre approach to innovation, particularly in the curriculum field, are evident in Member countries, many of them built around the notion of a network of mutually supporting, innovating schools. Goodlad (1972) argues that "the individual school is not sufficiently strong, within existing constraints, to overcome the prevailing .... characteristics of the surrounding school district". He, therefore, organised a League of Co-operating Schools and the Research Division of the Institute for the Development of Educational Activities (I.D.E.A.) acted as a resource and consultancy centre for the consortium which in 1972 consisted of 22 schools. The school was regarded as the "organic unit for change and a network of co-operating schools was created to provide a new social system committed to change. This social system legitimised and created a press for change ...." Variants on this strategy are increasingly employed in Member countries (e.g. in Switzerland, see Heiniger and Isenegger, 1973). In Germany "the Laender administrations tend increasingly to move away from the individual pilot school concept to that of a regionally co-ordinated 'experimental group' system. That system is hoped to allow for a more economic strategy of financing and for a quicker

transfer of innovation to the system as a whole". (Rommel, 1974). In Londonderry, Northern Ireland, six schools are co-operating to produce a "coherent, five-year secondary curriculum" in consultation with the New University of Ulster School of Education (McKay, 1973). Maddocks (1974) reports that, in Victoria, Australia, groups of high-schools in country areas are co-operating, with the encouragement of the State Education Department, to promote various educational activities, including curriculum matters. Here, too, the underlying assumption is that the participating teachers will gain mutual support and stimulation.

In England, several curriculum projects have employed a similar approach (see Kaner, 1973); the Geography 14-18 Project, for example, has developed a comprehensive and systematic strategy based upon over a dozen consortia in various parts of the country. A consortium consists of all the geography teachers from the co-operating schools - up to nine schools in one consortium. These teachers are encouraged to meet frequently and regularly, and they often do so on a weekly basis, in order to develop their geography curricula, to devise appropriate examination procedures in consultation with the examination boards and generally to plan and sustain the changes in relation to their own departments and schools. The consortia are led by specially appointed and paid co-ordinators, all of whom have received special training in change agent techniques from the central project team, aided by expert consultants (see Reynolds, Tolley and Hickman, 1974). Other English projects have focussed on particular regions. The North West Regional Curriculum Development Project promoted the production of materials for early-leaving pupils in the last two years of secondary school. Fifteen teachers' centres in thirteen local education authorities joined in a Manchester University co-ordinated scheme. After intensive local discussion, seven project teams consisting of 25 teachers and led by central project staff devised materials across most of the curriculum. (Schools' Council Research Studies, 1973). In Bristol, a Resources for Learning Project is currently being organised in co-operation with about thirty secondary schools in Avon County. A central project team, based in a teachers' centre, will work with teachers from the schools on a co-operative basis to produce materials and methods suitable for individualised, group and class teaching.

The main practical argument in favour of this strategy - that teachers and schools gain mutual stimulation and support - is generally well supported by experience. From a theoretical standpoint, the strategy exemplifies a combination of the two approaches described by Havelock in his social-interaction and linkage models (see Annex). The network or consortia, in effect, represents an attempt to give formal recognition and articulation to the informal

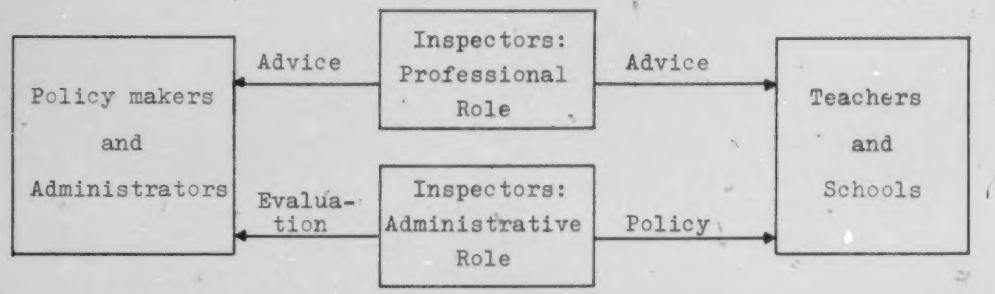
social-interaction network. The use of co-ordinators and resource centres represents an attempt to create a linkage agency both between the consortium participants and, sometimes, between the consortium and a central project. (The Avon Co-operative, for example, is building upon ideas developed in an earlier national Resources for Learning Project.) The argument that this approach will lead to more effective institutionalisation of the innovation in the network schools is yet to be tested empirically but does seem to be a reasonable one. The argument that the approach will lead to more effective dissemination throughout the region and, later, the country as a whole is less easy to sustain. If traditional dissemination procedures are used (i.e. in-service training, publications, etc.), there is no obvious reason why this should lead to more effective dissemination since, as far as teachers in other regions are concerned, the materials and approaches will probably be indistinguishable from those offered on the centralised R.D. and D. model. On the other hand, if the network strategy is adopted region by region, then the innovations so developed should be more effectively institutionalised. However, it would not seem appropriate to label this as a dissemination process: rather is it a strategy replication process? As such it is unlikely to be cheaper than a dissemination strategy, although it may in the long run be more cost effective.

d) The Inspectorate

There is a general agreement in Member countries that the inspectorate ought to form a significant part of any external support structure designed to facilitate change. This aspect of their role has been the subject of a recent seminar in the CERI "Creativity of the School" Project. There also appears to be some agreement about the ways in which inspectors can best support teachers who wish to innovate. These include giving advice to individual teachers in their classrooms and schools; providing access to resources (i.e. personnel, money, equipment, buildings); organising in-service training; providing information and linkage for neighbouring teachers' schools engaged in similar innovations; disseminating findings from central research and development agencies; organising and facilitating local curriculum development projects; informing the policy makers and administration about the needs and views of teachers and schools.

It is evident, however, that there are a number of difficulties associated with the role of inspectors as facilitators of innovation. Basically, these appear to stem from two sources. First, inspectors are sometimes referred to as "Janus" figures because they are required to face in two directions simultaneously - towards the teachers and schools and towards the policy makers and administrators. At worst,

this can mean that both teachers and administrators regard inspectors as marginal figures who offer idealistic solutions to problems which are not their central concern. Second, their role may be analysed along two dimensions - an administrative dimension and a professional dimension. In their administrative role they are in a power-coercive or political-administrative relationship with teachers and schools: they, therefore, inform them about decisions taken by policy makers and administrators and evaluate their performance. In their professional role they are in an empirical-rational relationship with teachers and schools: they, therefore, advise the policy makers and administrators about the needs and problems of schools and teachers and seek to improve performance, for example via in-service training. This duality of role may be represented diagrammatically as follows:



One directly related issue in many countries is the potential for conflict between the inspectoral and advisory aspects of the role (Kogan, 1973). Costa Ribas (1974) describes the situation in Spain as follows:

> "The most specific and characteristic functions of the inspectorate are, however, still those of control and guidance. A large part of the time available is devoted to them, although there is now a general tendency to allot priority to guidance over purely custodial control.... The balance between the functions of control and guidance, which are thought in many quarters to be incompatible, largely depends on the Inspector himself, and on a concourse of circumstances of the most varied kind: socio-political, structural, specifically pedagogic, etc. We believe that, for the time being, the control function will continue to be necessary. Education seems to be too serious a matter to be left to the judgement of the individual. Rules, however flexible, are made to be kept and someone has to see that they are enforced."

However, some writers on change are sceptical about the extent to which these two aspects of the role can be reconciled. Hoyle

(1970) for example, argues that, because of their association with a "punishment-centred administration", he is unable to regard the English inspectorate, both national and local, as change-agents in the sense that he is defining the term. How far the inspectors' effectiveness as advisers is diminished because they also evaluate, and whether centralised, national systems are more prone to this than decentralised systems, must be regarded as problematic since at present we have little empirical evidence to guide us. Moreover, it may be inevitable that the two roles have to be combined (see Costa Ribas, 1974; Doornbos and Geerars, 1974). After all, teachers and lecturers have to adopt similar dual roles in relation to pupils and student teachers respectively and most superordinate/subordinate relationships have this tension built in to them.

One response to this dilemma is to concentrate on the advisory role. For example, Aubel (1974) writes:

> "The Austrian Ministry long ago became aware that motivation by constructive advice and help would be preferable to rigid authority in creating a favourable atmosphere in the school."

Similarly, in England the number of general inspections of schools by both H.M.I. and local inspectorate has decreased significantly in recent years and more and more local authorities are using the term "adviser" rather than "inspector". A second approach is also evident in those Member countries that have created new positions and roles. According to Maddocks (1974):

> "Some recent developments in Australian education have tended to weaken the assessment function of the inspector and, at the same time, to transfer the consultative function to other educational personnel, and to strengthen it. (This) was a change in attitude by the inspectorate to the view that professional consultancy to teachers should be independent of an inspection-for-promotion function."

In Austria the numbers of Fachinspektoren or "functionaries of the inspectorate" have grown in recent years (Aubel, 1974). In England and Wales many local education authorities have appointed advisory teachers, on the teachers' salary scale which is quite separate from that for inspectors, to give direct support to teachers in their classroom. The development of professional, pedagogic and teachers' centres in Member countries has meant that new posts have been created (e.g. teachers' centre wardens, directors of pedagogic centres) with responsibilities closely similar to some of those previously carried out by inspectors. In England and Wales this process has gone a stage further: the responsibility for guiding and training beginning teachers during their induction year will be handed over to school-based teacher-tutors. Given such a situation of clear differentiation

of roles, inspectors should be able to concentrate more on the control side of the job and leave the guidance aspect to others. Whether the administration, the teaching profession and the inspectors themselves would want this to happen is an open question.

Quite apart from any conflict between the inspectors' administrative and professional roles, there are also logistic and organisational problems to be considered. For example, the degree and nature of specialisation attached to the professional dimension of the inspectors' role may also be an important influencing factor on the way in which they can help innovative schools and teachers. Patterns of organisation vary both between and within Member countries. Subjects, pupil age-range, districts and other specialisms (e.g. audio-visual aids, in-service training) all form the basis of organisation in one or more OECD Member countries. To some extent this is related to the location and size of the inspectorate. There is variation between Member countries as to whether they have national, regional and/or local inspectors. In Austria, for example, there is a centralised school system and the inspectorate are civil servants organised on a hierarchical basis at Provincial and District School Board levels (Aubel, 1974). In England and Wales the central government appoints Her Majesty's Inspectors to work at national and regional levels while local education authorities usually appoint their own inspectors, advisers and organisers (Department of Education and Science, 1974). Thus, although they often work together, H.M.I. and L.E.A. inspectors are quite independent of each other. In Japan (Arai, 1974) the Ministry of Education employs a number of supervisors and subject specialists for service in specific regions, while the prefectural and municipal boards employ teacher-consultants (in place of the pre-war inspectors). Comparative data on numbers of inspectors in relation to numbers of teachers are difficult to obtain, not least because, with the growth of the associated jobs mentioned above, it is not easy to define clearly what tasks inspectors per se actually do and do not carry out.

Indeed, it is striking how little empirical work on inspectorates is actually available: most of the written accounts come from official sources. Yet research studies in this field are certainly possible. A project currently being carried out on English local authority advisers (Bolam, Smith and Canter, forthcoming) has three main aims: to study the innovative functions of local authority inspectors and advisers; to relate these functions to their overall role; to identify their training needs. Its procedures include questionnaires to the main sample, interviews with a sub-sample and case studies of individual inspectors. The relevance to the inspectorate of a typology devised by Havelock (1969) who identifies several sorts of linkage agent (e.g. conveyor; consultant; trainer; leader;

innovator; defender) is being explored in the interview schedule. Preliminary findings from this project suggest that inspectors who are located in a teachers' centre perceive themselves as being more professionally and less administratively orientated, while the reverse appears to be true of those based in administration offices. It may well be the case, therefore, that the way the job of the inspectorate is defined affects the way they perceive their role and that by altering the location of the inspectorate's working base the professional or consultative dimension of their role can be strengthened. Of course, at present this must be regarded as speculative since we need to know much more about the way inspectors are perceived by, for example, teachers, heads and administrators in those varying contexts.

Future research both in the United Kingdom and in other Member countries will need to focus on these and a number of other issues if the most effective innovatory role for inspectors is to be identified. For example: What happens when the professional and administrative roles are separated? Is it the case that there are too few inspectors and that, in consequence, they are only able to initiate innovations but are unable to give them sustained support or monitor their progress? What is the most appropriate inspector/teacher ratio? Do inspectors have to retain their administrative role if they are to retain both access to resources and, therefore, credibility and status with teachers (see Costa Ribas, 1974)? To what extent and within which framework (e.g. a National Teachers' Council) is collegial supervision (Schmuck, 1974 a) a viable proposition in Member countries? Are subject specialist inspectors more orientated towards the professional than to the administrative dimension? Is the reverse true of district inspectors? How do teachers, heads and administrators perceive inspectors? What difference would changes in the role, numbers and types of inspector make to those perceptions and to the innovative potential of inspectors themselves?

Section IV

TEACHER PARTICIPATION IN INNOVATION

In Sections II and III some of the principal problems, tasks and procedures associated with innovation at the school level and with external support mechanisms have been elaborated. We now turn to the question of teacher participation in these processes and begin by identifying a trend in thinking about the need for teacher participation which is epitomised in the following quotation from Vanbergen, 1974, in speaking of the situation in Belgium:

"....participation is the operative term. If the major options affecting general objectives and procedures for organising education are to be taken by the responsible authorities (political and others) it must be realised that they are more likely to be realistic and be reflected in teaching practice if all concerned in the educational process (teachers, parents, pupils and students) have been fully enlisted in the operation. Conversely, when teachers and schools are given the maximum encouragement to prove themselves inventive and creative concerning curricula and methods, what hope is there that these initiatives can be valuable if they are not part of a coherent and adequate educational process? The above considerations show the complexity of the factors involved."

In this Section we examine some of the approaches to participation currently being tried in Member countries and consider some of the problems they are encountering. The Section falls into two parts:

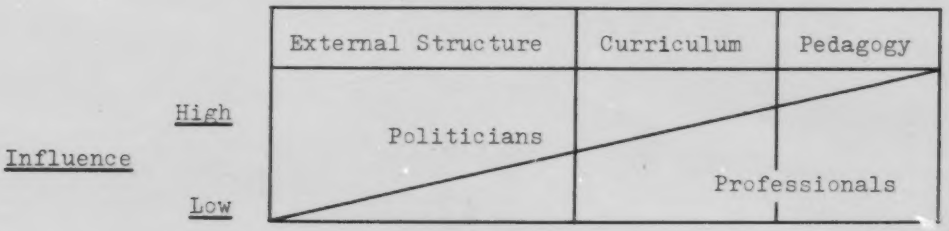
a) participation at the local, regional and national levels;
b) participation at the school level.

a) Participation at the local, regional and national levels

Generalisations about the extent to which teachers' views influence major policy decisions are obviously hazardous, given the absence of adequate comparative data. The most we can do, therefore, is to indicate briefly some examples of thinking and practice in Member countries and to try to identify trends and implications. Marklund (1974) distinguishes between three levels of educational innovation:

i) external structure;
ii) curriculum: aims, content and time allocation;
iii) pedagogy.

He says that, in Sweden, educational politicians have had most influence over decisions concerning external structure, the professionals (i.e. teachers, administrators and researchers) have had most influence over pedagogy while the responsibility for curriculum decisions has been more equally shared. He illustrates this in the following diagram:



Marklund argues that, because every type of innovation contains both political and professional implications, co-operation between politicians and professionals is essential and that teachers, in particular, must realise the political implications of those decisions in which they play a dominant role. He reports that, in general, the major macro-level reforms of the 1960s were carried through with the agreement of teachers, although they were mainly political in origin. This agreement was achieved by the extensive use of ad hoc state committees and negotiations between the Ministry of Education, the National Board of Education and the teacher unions. Significantly, however, when a substantial group of secondary academic teachers opposed the postponement of class differentiation or streaming to the age of fifteen, they were over-ruled by the politicians, although subsequently they "officially declared their loyalty to the politically enforced principle ...." When it came to the micro-level changes needed to implement these macro-level policy initiatives, the professional group, including the teachers, played a major part although research priorities were, apparently, ultimately decided by the politicians.

In the Federal Republic of Germany, there is an independent national advisory body for the federal and state governments called the B.R. or Education Council (Rommel 1974). The B.R. brings together:

> "top level, independent expertise on education - which is bound to include educational policy thinking - and presents it in the form of recommendations on structural and organisational overall development. These recommendations have in the past years proved to be the main starting ground or guidelines for reform programmes and projects."

These recommendations are then assessed by the B.L.K. (a body of Education Ministers from States and federal government). Vanbergen (1974) states that in Belgium the highly structured state educational sector has been more innovative since 1947 than the relatively less controlled state subsidised sector and, as an example, he describes a major reform in the French-speaking, secondary sector. The general objectives and time-table of this reform were fixed by the Minister after extensive consultations and the programmes for operationalising the objectives were devised by almost forty commissions composed of inspectors, teachers, heads and university lecturers. Their findings were centralised by a Central Reform Commission, composed of politicians, administrators and inspectors, who made recommendations to the Minister. Finally, the reform is being implemented via a process of extensive meetings with local teachers and self-monitoring of practical problems by regional commissions of local heads.

Although Dalin's (1973) view is that the involvement of teachers in decision making in England is particularly strong, their role in major policy decisions appears to be little different to that in some other Member countries. They are generally consulted via their professional association representatives but the extent to which this is true depends upon the stance adopted by particular Ministers. Major national innovations, like the extension of the compulsory school leaving age to sixteen, have been introduced in the face of substantial opposition from particular groups, often made up of those teachers most directly concerned, as in the Swedish example described above. This is also true at the regional level (see Holmes, 1973, and CERI Secretariat, 1973). Teachers may thus be thought of as a pressure group seeking to influence central policy in the interests of its members: sometimes the activity will take the form of an organised campaign, like The Campaign for Educational Advance in 1963 (Coates, 1973); more often, it will take the form of professional association representation on ad hoc committees (e.g. The Plowden Committee on primary education) to which the various associations will also present written and oral evidence. Teachers are also represented on certain key advisory bodies at national level, notably the Advisory Committee on the Supply and Training of Teachers and the Schools' Council (which in addition to its curriculum development work is also responsible for recommending changes in the examination system). Practice at the local level varies but it is quite common for teachers to have established consultative committees composed of representatives from all the various professional associations in order to co-ordinate their recommendations to, and discussions with, local education authorities. It is important to note that, at both national and local level, ultimate responsibility rests with the elected politicians.

Teachers in Member countries frequently participate in decisions concerning the education centres and in-service education and training (INSET). In Holland (Doornbos and Geerars, 1974), attempts are being made to discover the most efficient form of managing the thirty regional education centres and to ensure that schools, school boards and parents participate effectively. In Denmark (Torpe, 1974), the most important source of INSET is apparently the Royal Danish School of Educational Studies (D.L.H.) which consists of the main institution in Copenhagen and eight branches throughout the country. Teachers have up to 50 per cent of the votes on major issues in the eighteen subject institutes and at branch level broadly based councils have been set up with representatives from the Danish Teachers' Union, the school authorities and training colleges. In Australia (Maddocks, 1974), arrangements for administering the local teachers' centres vary but they all have a management committee, a majority of

whose members are teachers and on which the relevant education authority and tertiary institutions are represented. It is currently being officially recommended that the centres be re-named education centres and that parents should be included on the management committee. In 1973 the Swiss Teachers' Association defined teacher participation in INSET as:

> "the right to participate in decision making concerning the content, limits, form, structure and duration of courses and also in fixing priorities. Teachers' organisations should be represented on at least an equal footing with other bodies."

According to Weibel (1974) these requirements have been largely satisfied.

In the United Kingdom, teachers usually participate in the management of local teachers' centres but the degree of discretion they enjoy varies between local education authorities (Taylor L.C., 1975). Recent government policy statements are leading to a new organisational structure for teacher training. At national level an Advisory Committee on the Supply and Training of Teachers has been established and Regional Committees to co-ordinate the initial, induction and in-service education of teachers are currently being planned. The composition of these committees reflects the interests of three main groups - the local education authorities, the training institutions and the teaching profession and thus teachers have a substantial representation. It is likely that similarly constituted committees will be set up in each local authority area. Current thinking about devising a staff development policy to match the school's overall development and innovation plans suggests that each school will need to devise appropriate decision-making machinery. This may become a responsibility of staff councils or academic boards as they develop. Finally, if teachers are to make informed decisions about their own and their schools' in-service training needs, they will need the kind of counselling and advice which it is hoped school-based teacher-tutors (i.e. experienced colleagues) can give. The kind of structure which may emerge for enabling teachers to participate effectively in the planning of in-service education and training at various levels in England can be summarised as follows:

Level	Machinery
National	Advisory Committee
Regional	Advisory Committee
Local	Advisory Committee
School	Staff Council
Individual	Teacher-tutor

In the general report of a recent OECD project, (Shipman, 1974 a) concluded that research and development should be a major source of innovation and that:

> "The teacher should be given the skills to interpret and use research, the opportunity to become involved in it and to feel one of a team of equals searching for solutions to learning , problems in which he is an expert whose contribution is valued."

How far is this the case in Member countries at present? Here, too, we lack adequate comparative data but we do have some indicative evidence. Vanbergen (1974) describes the way in which teacher involvement in research has helped to promote major changes in the French-speaking secondary sector in Belgium. Contact between the universities and teachers was brought about in a series of related research projects. One possible outcome is a university-based research consultancy service to satisfy the demand highlighted by the project. Heiniger and Isenegger (1973) report on a Swiss regional research and development project aimed at primary school curriculum reform. The initiative came from the inspectorate but a university research institute was very closely involved. Although the participation of the teachers in the curriculum work was regarded as successful, there was, apparently, tension between the researchers and the teachers, partly because the teachers were not involved in planning the research side.

The value of teacher collaboration at the planning stage is demonstrated by Bodell (1974) who describes a Swedish survey designed to establish whether teachers' working week had changed as a result of school reforms. The teachers' unions were involved from the start and had three members on the steering committee. However, although there has been a great deal of experience in Sweden of collaborative work between teachers and researchers, Marklund (1974) says that recently a majority of teachers has begun to react against the speed of some of the micro-level changes which the researchers, administrators and more innovative teachers have actively supported. Dalin (1973) says that in Sweden's National Board of Education (N.B.E.):

> "when research work is narrowly defined, there is little or no teacher involvement, either in planning or in development or dissemination of the work. In the development departments of N.B.E., however, a number of teachers are involved in subject groups along with other professional groups, though their tasks are clearly defined by the N.B.E. One interesting point, however, is that two-thirds of the staff of N.B.E. itself are practitioners themselves working in the N.B.E. only for a few years before returning to their jobs in schools."

The situation in the Schools' Council in England is similar. Many of the central staff and most of the project staff are seconded teachers, and teachers collaborate closely in the pilot schemes and field work. While this has obviously been generally successful as a strategy, it has certainly not been without its problems: researchers are seen as marginal to the teachers' central concerns and both researchers and teachers often have difficulty in understanding each others' values and approaches (c.f. Jenkins, 1972). In Germany, Rommel (1974) says that the regional development groups which have become increasingly important in recent years, are usually dominated by administrators or researchers and are "rarely under the determining influence of the teachers themselves". However, in Wetzlar,

> "....teachers are the main group involved in the planning of educational reforms. Teachers generally take part in ...the specialised subject groups which are set up to develop the new curriculum in detail .... (However, this ...) was mainly a strategy by which it is hoped to get the ideas implemented 'from above' into the classrooms" (Dalin, 1973).

Practices also differ between different States in the United States, but the strategy adopted by Research for Better Schools Inc. (RBS) is not an uncommon one. RBS involved teachers very little in their work; their staff mainly consisted of scholars and academics and the assumption is that they are considered best for the research job to be done (Dalin, 1973).

It seems clear that practices vary both between and within Member countries with respect to the extent to which teachers participate in research. A distinction can be made between "pure" and "development" research; teachers are much more likely to be involved in the latter. They often participate in the planning and management of development projects and they are usually involved in the piloting and testing stages. Even so, it is problematic whether they feel as though they are regarded as equal partners in the exercise. It is important here to distinguish between the respective roles of teachers and researchers at this grass-roots level of activity. As Dr. William Taylor, until recently the research adviser to the Department of Education and Science for England and Wales, puts it:

> "Many first class research workers have come, and will continue to come, from the ranks of experienced teachers.... (but) such evidence as is available... suggests that productivity in research is negatively correlated with length of teaching experience...." (Taylor, W. (ed.), 1973 b).

Because of the growing complexity of research, many teachers are bound to encounter difficulties in understanding the researchers' language and tools. The challenge, therefore, is to create a climate

of professional opinion in which researchers and teachers recognise each other's different skills but nevertheless collaborate as equals. This will depend to a large extent on a continuation and development of existing approaches. The seconding of teachers as staff in central agencies and on development projects and their involvement in decision making at the project planning and management level all provide essential experience for researchers and teachers. In-service training, too, much have an important role. Advanced courses at the masters' level and beyond can equip teachers with research methodology. In Bristol, England, Taylor has organised a series of teachers' research and development groups which:

> "....have been developed since 1970 in order to provide semi-structured and supportive environments in which teachers can be encouraged to carry out small-scale and simple pieces of research and otherwise increase their awareness of, and active involvement in, educational research. It is primarily an in-service training process and the production of research findings of any generalisable value is of secondary importance." (Taylor, J.K., 1973).

After an initial training sequence, the groups specialise in topics and problems of particular relevance to them in their own classrooms and schools. Innovative approaches of this kind must be developed alongside the traditional courses if teachers are to be equipped to participate effectively in research and development and if teachers are to develop a more favourable attitude to research. (Vandenberghe, 1973).

As has been discussed earlier, examinations and pupil evaluation systems can be either a powerful constraint on, or incentive to, innovativeness: it is, therefore, important to consider briefly ways in which teachers can participate in decisions about them. In England and Wales, external examinations act as a major determinant of curriculum and teaching in the secondary schools and teachers have sought to influence the type, scope and content of these examinations. They have worked with the General Certification of Education (G.C.E.) boards to introduce flexibility into the G.C.E. exams: individual schools and groups of schools are now examined on their own syllabuses. The Certificate of Secondary Education (C.S.E.), which is taken at sixteen by roughly the second quartile of the ability range, offers greater flexibility to teachers: they can set their own examination on their own syllabus with external moderation. Interestingly, not many schools do this, possibly because most teachers prefer the relative simplicity of an external syllabus and examination, or because they are, anyway, very much involved at the regional level in setting the syllabus and examination and thus feel no need to introduce their own. Finally, and to some extent

underlying both these first two points, teachers are powerfully represented on the Schools' Council for Curriculum and Examinations. Variations on external examinations in the United States are "performance contracting", "bidding" and "merit-awards" (Sharp, 1974). Although teachers' representatives have opposed these approaches, they are being adopted experimentally in a number of school systems. Clearly, teacher participation here is of considerable importance. Eidell and Nagle (1972) describe a systematic approach to the related task of applying PPBS. (Planning, Programming, Budgeting Systems) to schools and school districts. They distinguish between prerogatives of three groups: professionals, policy makers and community. Their system depends upon an elaborate, computerised process which is presumably expensive and time-consuming. Time alone will tell whether this kind of participatory structure is generalisable to other American school systems and other countries.

b) Participation at the school level

Section 2 of this paper focussed on the management of innovation at the school level and raised some of the associated issues and problems which have to be dealt with whether or not existing decision-making procedures are modified. What difference will participatory school structures make to the innovation process? What are the most appropriate forms of participation? We begin by looking at some current practices and thinking in Member countries, particularly as discussed in the CERI "Creativity of the School" project.

Jacobs (1974) describes some of the moves towards internal democratisation in Dutch secondary schools. These generally involve a greater share in decision making by teachers, pupils and parents although final authority rests with the inspectorate, representing the Minister of Education. Rommel (1974) reports that in several states in West Germany, there has been a significant growth in the power of teachers as against directors (or principals) in decision making at the school level. In some experimental model schools the director has been replaced by a team which in two cases has taken over full directorial responsibilities. In one state the director will be elected and their tenure will be for a limited period only. Hoyle (1974 a), says that, since head teachers in the United Kingdom have considerable autonomy, one way of increasing the innovativeness of schools would be to concentrate on trying to improve the leadership skills of the head. He believes that this, in itself, would be insufficient since account has to be taken of demands for a change in schools' authority structure: i.e. to a collegial pattern of decision making by professional equals using democratic procedures. Although many heads, especially in large secondary schools, have established consultative machinery, the authority structure is still

hierarchical in most schools. There, however, are a number of innovatory schemes ongoing, notably at Countesthorpe, Leicestershire, where the Headmaster gave away his authority to a weekly meeting of the whole staff, including non-professionals (Dalin, 1973). It is important to note that few English schools have attempted to go this far as yet. In the United States, according to Schmuck (1974 a), some schools have adopted a collegial supervision system whereby professional peers, rather than higher status administrators, take over the responsibility for monitoring or supervising each other's professional behaviour, by providing constructive feedback based on systematic observation.

The second stage of the CERI 'Creativity of the School' project has led to a particular focus upon certain topic areas, one of them being the internal re-organisation of the school. In a modified version of McMullen's, (1973 a) classification, Nevermann, (1974) identifies four types of authority structure:

i) the authoritarian/bureaucratic type, in which the Principal takes decisions autocratically in a hierarchic organisation;
ii) the consultative type, in which the Principal retains final authority, though he delegates more and uses consultative procedures;
iii) the collegial type, in which authority rests with the professional staff, the Principal acts as an executive and pupils/parents <u>may</u> be consulted;
iv) the full participatory type, in which authority rests with professional staff, students and perhaps parents and non-professional staff too.

This typology, and the questions which Nevermann generates from it later in his paper, reflect a welcome increase in precision of thinking about the global concept 'participation', which is further evidenced in certain research projects on this topic.

Isambert-Jamati (1974) reports a study of the mode of operation of the governing boards of four technical high schools in the Paris region which is of considerable substantive and methodological interest. She found a tendency for older staff, middle-class parents, middle-class pupils and employers to be over-represented. Sixty per cent of the board's time was spent on internal school matters, 14 per cent on external relations and 26 per cent on procedural matters to do with the running of the board. The schools' Heads spoke for over 50 per cent of the time and clearly dominated the proceedings; the teachers spoke for 15 per cent of the time, the parents for 6 per cent, the pupils for 2 per cent, the employers for 3 per cent and the trade unions for 1 per cent. Most of these contributions (over 50 per cent) were information-giving while the board's deliberative

discussion was dominated by the Head and his senior colleagues. The meeting usually took place once a term and 60 per cent of the members attended at least two-thirds of them. Isambert-Jamati concluded that the Head and his immediate deputies dominated the boards which had become little more than ratification bodies for their policies.

These preliminary findings are very much in line with previous experience and empirical work in the wider context of worker participation in industrial management. Reviewing such experience in Holland and Yugoslavia and reporting on some controlled laboratory experiments, Mulder (1971) concludes that participation structures usually result in more, not less, power for the already powerful management, administrators and experts. He recommends further research into ways of motivating workers to participate and of equipping them with appropriate expertise to participate effectively in decision making. Although teachers are less likely to find "lack of expertise" a problem, their motivation to participate does vary.

Holopainen et al. (1974) report some preliminary findings from a study of innovation and teacher participation in two Finnish secondary schools. Teachers in both schools wanted the equalisation of decision-making power between different groups and in particular wanted the staff conference to play a more significant role as compared with the Head and the administration. However, they were very reluctant to spend time after the normal working day on committee work unless they received overtime payment. Motivation to participate is not, of course, associated only with monetary incentives. Alutto and Belasco (1972) explored the discrepancy between actual and desired rates of decisional participation in two American school systems. The teachers who felt decisionally deprived (i.e. who wanted a greater share in decision making) tended to be younger males teaching in rural district secondary schools. Those teachers experiencing decisional saturation (i.e. who wanted a lesser share in decision making) tended to be older females in urban district elementary schools.

Hoyle's [1974 a) and 1974 b)] distinction between restricted and extended professionals offers helpful theoretical insight into the possible reasons for this differential desire to participate in decision making. He suggests that the characteristics of the two types may be hypothesised as in the accompanying table. The clear implication is that restricted professionals will not wish to participate in decision making at the school level or beyond. The further significance of this typology, however, is that it suggests that they may also be extremely reluctant to support many current innovations like open schools and team teaching because of the threat the latter pose to their relative classroom autonomy. It is unclear, as Hoyle says, whether extended professionality can only be achieved

CHARACTERISTICS OF RESTRICTED AND EXTENDED PROFESSIONALITY

Restricted professionality	Extended professionality
Skills derived from experience	Skills derived from a mediation between experience and theory
Perspective limited to the immediate in time and place	Perspective embracing the broader social context of education
Classroom events perceived in isolation	Classroom events perceived in relation to school policies and goals
Introspective with regard to methods	Methods compared with those of colleagues and with reports of practice
Value placed on autonomy	Value placed on professional collaboration
Limited involvement in non-teaching professional activities	High involvement in non-teaching professional activities (especially teachers' centres, subject associations, research)
Infrequent reading of professional literature	Regular reading of professional literature
Involvement in in-service work limited and confined to practical courses	Involvement in in-service work considerable and includes courses of a theoretical nature
Teaching seen as an intuitive activity	Teaching seen as a rational activity

Source: E. Hoyle, "London Educational Review", 1974.

at the expense of restricted professionality, i.e. effective class teaching. Here Hoyle identifies a paradox:

> ".....if teachers wish to resist the trends towards greater openness and hence limit uncertain situations, they need to have a greater control over their work situation. But a greater control over their work situation implies an increased degree of collaboration and collegiality, which is itself a component of the extended professionality which is being resisted."

Finally, two other questions are raised by this typology: How far can a move from restricted to extended professionality be brought about by, for instance, in-service training? and because many teachers define the job of teaching in restricted professionality terms, might not teacher recruitment and drop-out problems be seriously increased by a move towards extended professionality?

One of the assumptions underlying the move towards greater participation for teachers is that it will improve their innovativeness in two principal respects: first, that they will be more likely to support innovations if they've been involved in deciding whether they should be adopted; second, that a participatory structure will allow their innovativeness to flourish. A priori, the first argument appears to be a strong one and it is certainly appealing in the current ideological climate but, according to Dalin (1973) the evidence from the CERI case-studies lends it no support. Gross et al. (1971) are also extremely doubtful about the related argument that participation is essential to the successful initiation of innovations. After a highly critical review of the relevant, though sparse, empirical work, they conclude that the role of leadership and management is a more important variable to study in seeking to explain the fate of innovations. Although their own study is open to serious criticism (they appear not to have considered what difference a participatory structure would have made to the innovation which they studied), they are probably right to assert that at present there is little research evidence to support this first argument.

The second argument - that participatory structures will be generally more innovative - also opens up a number of important issues. Not all teachers are innovative and thus a participatory structure in a school which contains a majority of traditionally minded staff will probably not be innovative. A more likely variant on this situation is suggested by Dalin, (1973) who says that, because teachers are most centrally concerned with the curriculum, they will support curriculum changes rather than other, possibly more necessary, types of innovation. He also questions "the simple assumption that participation is more democratic" if it merely means that professionals (i.e. teachers) monopolise the decisions and effectively suppress the views of other interested groups (e.g. pupils and parents). It is significant in this context that collegial structures are generally more favoured by teachers than full-participatory structures.

From the viewpoint of most teachers, pupil and parent participation of the kind now being experimented within some Member countries (e.g. in the United States, see Schmuck, 1974 a, in Sweden, see

Rodhe et al., 1974; in Finland, see Holopainen et al., 1974; in Denmark, see Johannesson, 1974) will inevitably be seen as an undesirable constraint upon their own influence on decisions at the school level. This phenomenon has led some American change agents to refer to the 'politics of professionalism' and to engage in action projects designed to equip student and community groups to overcome the power of professional teacher groups (Chesler et al., 1972, and Chesler and Lohman, 1971). For related reasons, Balloch (1974), has made a plea for a revision of the traditional 'insular' model of a profession:

> "A redefined, 'open' model of 'professionalisation', more congruent with changing social values, with the nature of the teaching force and with the teacher's work, would do better to emphasize the importance of co-operative and individualised relationships between teachers and pupils, reduced social distances between professionals and clients and the value of the teacher's availability to and rapport with those for whom he works."

What is obviously needed before any firm conclusions can be reached about the viability of particular structures and procedures for teacher participation at the school level is a great deal more practical experience and accompanying research. Conceptual and methodological rigour ought, therefore, to be brought to a problem which at present throws up a great deal of confusing terminology and imprecise thinking. Approaches like that reported by Isambert-Jamati (1974), Mulder (1971), Alutto and Belasco (1972), and Baron and Howell (1974), point the way forward. Equally, it is to be hoped that the potential value of training teachers and others for participation will be explored in a research and development context (c.f. Schmuck, 1974 b).

Section V

A NATIONAL STRATEGY

This paper has addressed itself to two main questions - the first concerned with the support system needed to facilitate innovation (Sections II and III) and the second with teacher participation (Section IV). This concluding Section will briefly review the main points of these earlier Sections and explore some of the major issues arising.

The question of the most appropriate support structure was treated essentially as a problem in the management of innovation. It was assumed that, whether by traditional means or via a participatory structure, these management tasks would still have to be

carried out and, moreover, that there was reasonable agreement about the nature of the attendant problems, tasks and procedures. For example, while most Member countries adopt political-administrative, top-down strategies for innovations in the fundamental aims and structure of the educational system, many of them now appear to doubt the ultimate effectiveness of the top-down approach for changing the curriculum and pedagogy, even though rational-empirical strategies are used. In fact, there seems to be considerable agreement that, if innovations are to become genuinely institutionalised at school and classroom level, then the needs and problems of teachers and schools have to be considered much more carefully than hitherto.

This shift in perspective is of critical importance. Minimally, it means that, though the top-down strategy is still basically adhered to, greater attention is being given to the creation of an infrastructure at various levels for the support of teachers and schools seeking to introduce centrally developed innovations: the roles of teacher training at the initial, induction and in-service stages, education centres, the network of schools approach and the inspectorate in this infrastructure are being explored and articulated. Maximally, it means that the school is being conceptualised as a creative social system and that the external infrastructure is then being used to strengthen its problem-solving capacity using various in-service and consultancy intervention strategies. Havelock's (1969) notion of a problem-solving macro-system containing fully defined and articulated micro-systems, each operating on a problem-solving basis, offers a helpful, if over-tidy and rational, theoretical basis for these approaches. The practical problem is to identify and develop the most effective operationalisation of this theoretical model in the context of particular problems and countries.

Having identified the problems, tasks and procedures associated with the management of innovation at the national, regional, local, school and classroom levels, each country has also to decide on the kind of climate in which innovation will be pursued. There appears to be fairly general agreement that this climate should be characterised by participation in decision-making but the problems arise when we begin to analyse notions like decentralisation and participation. As Kogan (1973) puts it with respect to the United Kingdom:

> "... the place of parents, pressure groups, professional associations and so on in the educational system is uncertain and needs to be developed. But these roles are best not developed in terms of grandiose and vague statements about participation. Distinctions need to be sustained between participation and control, authority and power, management

and the criticism and review of management. At present, liberal intentions in Britain are confusing these categories".

A spirit of openness in the national systems and regulations which positively encourage participation and innovativeness are a basic prerequisite: the next step is to be precise and specific about concepts like those identified above.

We can begin by identifying relevant task areas, for example curriculum development, discipline, teacher training, etc., and for each of them we have to ask specific questions. First we must specify the different levels - national, regional, local, school and classroom - at which decisions can be made. Next, we must ask what kind of machinery - commission, committee, working party, staff council, professional team, etc. - is appropriate. Next, we must ask what type of teacher involvement - via representation, direct participation or personal decision - is appropriate. Next, we must ask what and how other interests - pupils, parents, training institutions, politicians, administrators, inspectors, employers, trade unionists, the community, etc. - are to be represented. Next, we must ask what degree of discretion or autonomy such a body will have over particular types of task or decision - advisory, autonomous, management, etc. These and other similar questions have to be asked about each type of task or decision relating to innovation in education. In addition, there is the fundamental question, discussed in Section 4, as to whether <u>all</u> teachers wish to participate in these decisions. It will surely be ironic if participation becomes compulsory! A new dimension would then be added to professional freedom: the right <u>not</u> to participate.

These are the detailed questions implied in a broad strategy, which is clearly one that would command general support, suggested by Gass, 1973:

> "Some decisions about change in the educational system belong, of necessity, to the community as a whole; in that sense there should be a national strategy for educational change. At the same time, many changes can only be initiated at the local level, and all call for creative action in the school: decentralisation of power is thus a necessity for the functioning of the educational system. Yet the school can only be creative if the environment is conducive to change, and this is dependent on many aspects of policy for which national, regional and local authorities are responsible: financing, information systems, research and so on."

Finally, it is important to stress the potentially valuable role of research and development work in this field. The plain fact is that we still do not know enough about the management of

innovation or about effective participatory structures: it is to be hoped that conceptually rigorous national and comparative studies will be mounted to rectify this. Some of this research and development work should certainly be directed at training for change. A great deal of significant work has been initiated in the United States both for practitioners and trainers (e.g. Schmuck et al., 1972; Jung. 1972; Havelock and Havelock, 1973; Chesler et al., 1972), and is now having its impact in Europe (e.g. the CERI/IMTEC project; Glatter, 1972; Eraut, 1972). It is vitally important that this work is sustained and developed and then disseminated more widely.

Annex

A THEORETICAL FRAMEWORK

It may be helpful to look briefly at some of the principal typologies and models which have been devised to make sense of the complex business of educational innovation.

A. FACTORS IN THE INNOVATION PROCESS

There are essentially four major factors to be considered (see Bolam, Smith and Canter, forthcoming; Hull, Kester and Martin, 1973):

i) the innovation;
ii) the innovating system;
iii) the innovator system;
iv) the innovation process.

Each of these is dealt with separately below. They are also represented as a two-dimensional model in the accompanying diagram.

Factor 1 - The Innovation

We may usefully adopt Dalin's (1973) definition of innovation as "a deliberate attempt to improve practice in relation to certain desired objectives", while recognising that this begs many important questions (Whose desired objectives? Whose definition of "improve"?). We may also adopt his distinction between four principal types of innovation in schools and the wider education system:

i) those to do with aims and purposes;
ii) those to do with organisation and administration;
iii) those to do with roles and role relationships;
iv) those to do with the curriculum, pedagogy and evaluation.

Such distinctions are, of course, bound to be arbitrary and other classifications (e.g. Hoyle, 1970) may be more valid for particular purposes. Innovations may be internally or externally generated and can be analysed along a number of dimensions, e.g. how compatible they are likely to be with the values of the innovative system (see Rogers and Shoemaker, 1971). Finally, these and other factors will

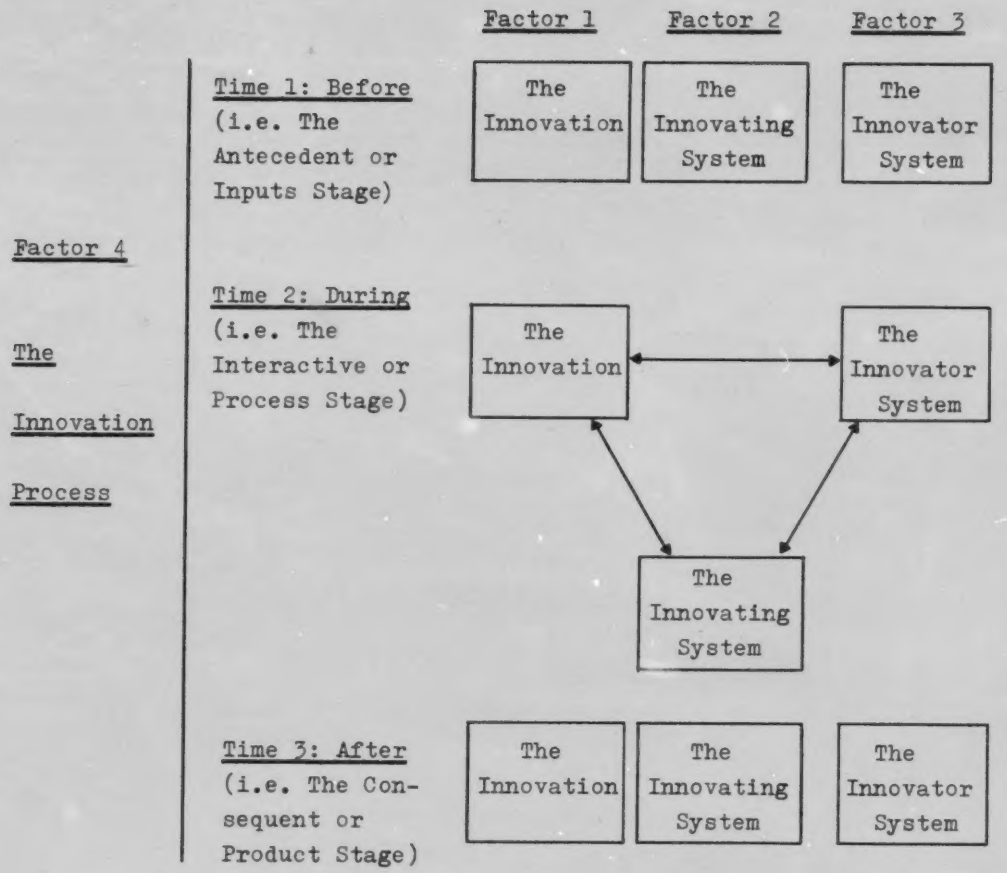
influence the way the innovation is perceived by the innovator and innovating systems.

Factor 2 - The Innovating System

This is the system which is either inventing or adopting an innovation. It is sometimes referred to as the user system, the adopting unit, the target system or the client system. It can be an individual teacher, a department, a school, a local authority or a national education system. A number of writers (Hoyle, 1974 a; Fullan, 1972; Schmuck, 1973) argue the need to conceptualise schools as social systems and Havelock (1969) adopts a systems perspective to analyse the diffusion of knowledge process. With respect to schools, it is certainly helpful to bear in mind that both its internal (e.g. authority structure; role relationships; organisational climate) and external (e.g. local authority regulations; national goals; views of parents) characteristics are all likely to influence and be influenced by any innovation.

Factor 3 - The Innovator System

The innovator system, sometimes called the change agent, may be analysed in a similar fashion to the innovating system. It may be an individual teacher/head/inspector, a departmental or research project team, a local authority or a national government. It may be a part of the innovating system or outside it. Both its internal and external characteristics are likely to influence and be influenced by any particular innovation process. It may have access to a number of innovation strategies (see below). It will be perceived differently by the innovating system according to its status, location and the strategies it adopts.



Factor 4 - The Innovation Process

It is important to emphasize the dynamic nature of the innovation process: innovations take place over time and this can have a powerful effect upon whether and how they are eventually adopted (Gross et al., 1971). Before the process begins, i.e. in the antecedent stage, the three factors (or inputs) may be said to exist separately, although the innovator and innovating systems may well have views about each other and about the innovation. During the process itself, the factors may be said to be in interaction with each other and, in consequence, each will be affected by the other: for instance, the teachers may change their teaching methods, the innovating head may modify his power-coercive strategy and the materials in the innovation may be modified to meet the objections of the pupils' parents. Finally, after the process is complete, i.e. in the consequent stage, the factors (or product) may be said to be separate again. Nevertheless, they will almost certainly be different. For instance, the teachers may have changed their teaching behaviour and their opinion of both their Head and the innovation materials.

The Head may have learned some empirical-rational techniques which he plans to use on future innovations and the materials may be radically altered by any outside project team as a result of the experience. A framework for the evaluation of the innovation process is provided by Stufflebeam (1971).

B. STRATEGIES OF INNOVATION

As indicated in Factor 3 above, the innovator system or change agent may have access to a number of innovation strategies and it will be helpful to discuss and clarify some of them. We may adopt Dalin's (1973) broad concept of strategy as 'all available procedures and techniques used by individuals and groups at different levels of the educational system to reach desired objectives'. Bennis, Benne and Chin's (1969) well-known typology of innovation strategies is also helpful:

i) Power-coercive (or political-administrative) strategies depend upon political, legal, administrative and economic power as their main sources of overall power. Thus, governments, local authority education boards, inspectors, head teachers and teachers all employ such strategies at some time or other. Dalin (1973) refers to them as political-administrative strategies;

ii) Empirical-rational strategies assume that men are reasonable and will respond best to rational explanation and demonstration. Typically they involve the use of general education and training to disseminate knowledge and research findings;

iii) Normative re-educative strategies assume that effective innovation requires a change of attitudes, relationships, values and skills and, therefore, the activation of forces within the client system. They typically involve a consultant/change agent who works in co-operation with a client system and uses behavioural skills.

Here, too, we must acknowledge that, although these distinctions are helpful for purposes of analysis, the categories are inevitably somewhat arbitrary and certainly rarely exist in their pure form. Innovations frequently involve changes in, for instance, both curriculum and organisation; innovators frequently employ, for instance, both power-coercive and empirical-rational strategies.

Nonetheless, some broad, speculative generalisations do seem worth considering. At the national level, the major strategy employed by governments to disseminate policy is probably a power-coercive or political-administrative one. In both centralised and de-centralised systems, governments attempt to innovate in the educational system's

goals and structure by political-administrative means. In centralised systems, policy usually also embraces the curriculum but not pedagogy, whereas in decentralised systems, both curriculum and pedagogy have been largely the responsibility of schools and, to some extent, local education boards. Thus, alongside the power-coercive strategy, which is a centre-periphery (or top-down) approach, there has apparently been a tradition, of varying strengths in different Member countries, with respect to pedagogy, and to a lesser extent curriculum, of relative autonomy at the periphery i.e. in schools. In both centralised and decentralised systems, political-administrative policy directives have probably generally been followed by empirical-rational strategies of information dissemination and training; latterly, empirical-rational strategies of research and development often precede policy directives. Finally, it seems likely, as we shall see, that in all Member countries the problems of changing role relationships and attitudes have been underestimated when introducing, say, curriculum innovation and that, accordingly, normative re-educative strategies have rarely been used.

In considering the diffusion of knowledge rather than policy, we may usefully turn to the work of Havelock (1969) who provides many insights into the workings of empirical-rational and normative-re-educative strategies - though his work is not, it should be emphasized, very relevant to an understanding of power-coercive strategies. Havelock seeks to explain the way knowledge diffuses through social systems (whether they be whole countries, schools, factories, or small groups) by formulating four models of the knowledge diffusion and utilisation process:

i) The social-interaction model describes a process which is probably historically the earliest approach to knowledge diffusion. Essentially it involves the transmission of knowledge by individuals along informal networks of professional colleagues and friends. It is unsystematic and unplanned, though the original source of the knowledge (or innovation) may nowadays be a researcher or research organisation. Although it may be categorised as an empirical-rational process, it derives its strength from the well-documented fact that we are more likely to be influenced by people whose judgements and opinions we share or respect. In decentralised systems this was, until fairly recently (i.e. until about 1960 in the United Kingdom), the principal way in which knowledge about innovations in curriculum and pedagogy diffused through the system.

ii) The research, development and diffusion (R.D. & D.) model describes a process with several major stages: basic research; applied research; development and testing of

prototypes; mass production and packaging; planned mass dissemination; receipt by the user. It is essentially an empirical-rational strategy and has come to be widely adopted in Member countries over the last 15 to 20 years as the principal approach to curriculum development and innovation. In this context, we can point to the establishment of the various national organisations described in recent case studies (CERI, 1973, Volume 1), e.g. the Schools Council (United Kingdom), the Research for Better Schools Inc. (United States) and the National Council for Innovation in Education (Norway).

iii) The problem-solver model is presented by Havelock as a single model, but, arguably, consists of three quite distinct sub-models. The first, which we may call the problem-solving user model, is based upon empirical-rational assumptions. It describes a user, say a school, which employs a cyclic, problem-solving strategy: felt need; problem diagnosis; search and retrieval of resources, from within and without the school; fabrication of solution; application; evaluation; restart of cycle. The second sub-model, which we may call the task consultant model, is also an empirical-rational one, and describes the role of an outside change agent who seeks to help the school with, say, curriculum development. The third sub-model, which we may call the process consultant model, is based upon normative-re-educative assumptions and describes the role of a non-directive outside change agent who typically seeks to help the school with such processes as problem diagnosis, resource identification and problem-solving procedures.

iv) The linkage model is Havelock's attempt to unify and integrate the three preceding models by emphasizing the need for linkage procedures and agencies which both offer resources to users and link them with more remote resource agencies. These resources could consist of curriculum materials from a central agency, consultancy, or information about other users with related experience or interests.

C. PURPOSE OF THE FRAMEWORK

The aim of this conceptual framework is threefold:

i) to help in the general study of innovation (e.g. it offers categories for a literature review);

ii) to help in the study of particular innovations (i.e. it offers a conceptual framework for case-studies);

iii) to help in understanding problems, tasks and procedures in the management of change (i.e. it offers a guide to action).

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Part Two

SCHOOL-BASED CURRICULUM DEVELOPMENT AND TEACHER EDUCATION POLICY(1)

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1) This text is based on a CERI publication entitled Handbook on Curriculum Development, OECD, Paris, 1975, which is the result of the first phase of CERI's work in this area.

I. THE CONCEPT, AND THE CASE FOR SCHOOL-BASED CURRICULUM DEVELOPMENT

1. What it is:

School-based curriculum development is a new name for an old idea. The idea is that the best place for designing the curriculum is where the learner and the teacher meet. For example, unlike the Sophists, who claimed to have plans and schemes to teach anyone useful knowledge and predefined techniques, like debating, Socrates built up his curriculum in and through relationships with students who displayed an aptitude for philosophical and mathematical reasoning. This was school-based curriculum development with the public places of Athens serving as the school and the joint dialectical experiences of the teacher, his peers and his pupils constituting the curriculum. There were at hand scribes like Plato who produced post hoc accounts of the substance of these discussions, thus providing texts for two millenia of philosophy instruction, much of it more in the mode of the Sophists than of Socrates.

The point of these opening remarks is to suggest not only that the idea of school-based curriculum is an old one, but also that it is an idea, even an educational philosophy, and not simply a method or a technique. As an idea or an educational philosophy school-based curriculum development makes a number of claims:

i) The curriculum is, for the learner and the teacher, made up of experiences; these should be experiences of value, developed by the teacher and learner together from a close and sympathetic appraisal of the learner's needs and his characteristics as a learner.

ii) Freedom for teacher and for pupils is a necessary condition for the full educational potential of these experiences to be realised. This freedom should extend to allow the teacher to define objectives, set targets, select learning content, modulate the range and tempo of learning tasks, to determine what is appropriate in the form of both criteria and techniques, and to assess the extent to which the potential value of the learning situation has been realised. Conversely, teacher and pupil need to be freed from onerous burdens and constraints which interfere with education. This constellation of freedoms must involve the teacher and the pupil; it also involves, as we shall see, other agencies in a network of freedoms and constraints.

iii) The school is a human social institution, a place in which educational experiences can occur naturally and easily, although not without effort. It engages in complex transactions with the environment which involve exchanges of ideas, resources and people through a network of communication systems. The school's responsiveness to this environment, which is not at all the same thing as uncritical adjustments to its demands, depends upon its freedom to build up its own curriculum in part as an exchange system with that environment. The school is, or may be, staffed by professionals who know what they are doing and who are capable of defining not only relevant learning experiences but also the support system required if those experiences are to become a reality in the lives of pupils.

iv) Curriculum development is an intellectually demanding and onerous task which calls into play all the teacher's competencies and skills; its success depends upon the development of quite substantial support systems.

v) School-based curriculum development does not preclude curriculum development at other levels than the school, nor does it deny a creative role to others than teachers and pupils. One of the major tasks for policy makers is to help allocate types of curriculum decision to different agencies and interests from local to national level, and to design the necessary structures for sustaining curriculum development at all levels.

vi) Teachers, if suitably trained, can act effectively as curriculum developers, but part of the necessary support system for school-based curriculum development is an extensive in-service education programme whose main features are only now beginning to be worked out.

As stated above, school-based curriculum development is a new name for an old idea. Why has the name been introduced, and how can we explain the manifestations, in many different educational systems of school and teacher freedom to make and remake the curriculum? The answers to these two questions are, of course, linked: the name itself signifies the growing evidence of greater teacher freedom and autonomy, of dissatisfaction with imposed curricula however scholarly in inception and elegant in form, of support systems which presuppose and facilitate teacher curriculum development, and of courses in colleges and universities which encourage teachers to think critically and creatively about the curriculum. For these and other reasons it has become imperative to recognise the emergence of a movement, an ideology, perhaps. Hence the term school-based curriculum development, which refers to a phenomenon and to an attempt to rationalise, assess and strengthen that phenomenon.

In the simplest terms, school-based curriculum development claims that of all our educational institutions and agencies, the school and the school teacher should have the primary responsibility for determining curriculum content, the learning resources needed for this content, and teaching, learning and evaluation procedures. Many objections and qualifications can be and have been made to this claim. As stated, it is too simple, since it does not acknowledge the complexity of curriculum decision-making in any national system. The case for school-based curriculum development is nevertheless a strong one. We shall consider first the arguments for it, and a model for school-based curriculum development which has practical value for schools, then the criticisms of and alternatives to school-based curriculum development, and, finally, some of the major implications for a policy and programme of teacher education.

2. The case for school-based curriculum development

1. Some of the arguments advanced for school-based curriculum development have been touched upon already. The principal argument favouring it is the need for the teacher and the learner to enjoy freedom to form educative relationships. Externally imposed syllabuses, textbooks, examinations all define educational values and set certain standards which are, of course, important from the standpoint of the individual as well as for national and social purposes; however, they make the spontaneity, flexibility and diversity which are an equally important part of education much more difficult to achieve. The learner's first-hand experience is consequently neglected despite its rich educational potential. Such external demands on the school, when organised into a curriculum, can also be ideologically very powerful and hence a source of concern for democratic societies. We need a system for curriculum development that combines the advantages of national policy-making, national centres for the production of materials and for research and development, with the flexibility, adaptability and professionally satisfying features of local initiatives and creativity.

2. In the United Kingdom, there is widespread agreement that primary education has benefited in many different ways from the reduction of external constraints on the curriculum. A similar freedom is enjoyed by university teachers who would never accept for their own courses the kinds of constraints that are still widespread in secondary schools.(1)(*) Indeed it is one of the paradoxes of the British as of many other European systems that great pressure is exerted on secondary schools through examination boards which are heavily influenced by the expectations of university teachers even

*) Figures in brackets refer to Notes and References at the end of this article.

though the vast majority of pupils passing through these secondary schools never undertake any higher education. This paradox can be explained away but only by producing thoroughly unconvincing arguments about the special virtues of the academic as a curriculum decision-maker.

3. The case for school-based curriculum development is not merely an abstract one, based on contentious notions of freedom, democracy and the dismantling of some of our treasured hierarchies. It is in part also a reaction against what is widely felt to be a failure in practice of the descending models of control and dissemination which are still prevalent in many different kinds of countries to produce a satisfactory educational system. There are two points here. First, in the United Kingdom there is a deep distrust amongst teachers or at least amongst their official representatives of anything suggestive of national curriculum control.(2) As already stated, control of a kind certainly is exerted through the examining boards, and in a number of other ways, but these boards are not governmental agencies, and they are teacher dominated even if the major single influence is often the university teacher. Resistance to national syllabus making was most obviously displayed during 1963-64 when it was felt by the teachers' associations (and by the local authorities) that there was a threat in the then Ministry of Education's proposal to set up for itself a curriculum study group somewhat along the lines of the highly successful Buildings and Architects Branch. What eventually emerged as the Schools' Council took great care in its terms of reference to affirm that it was a supporting and facilitating body: "The objects ... are to uphold and interpret the principle that each school should have the fullest possible measure of responsibility for its own work, with its own curriculum and teaching methods based on the needs of its own pupils and evolved by its own staff: and to seek, through co-operative study of common problems, to assist all who have individual or joint responsibilities for, or in connection with, the schools' curricula and examinations to co-ordinate their actions in harmony with this principle".(3) Furthermore, corporateness in curriculum making was not taken to mean any abrogation of existing rights. The Council saw itself as "a free association of equal partners, retaining unimpaired their own rights of decision within their own areas of responsibility".(4)

After ten years of highly productive activity, there is growing evidence that the Schools' Council sees its future less in the generating of ready-made curriculum packages than in the support of local and regional initiatives, and in various other systems which will sustain teachers as at least participants in curriculum development. In a recent Council publication, three different types of projects were identified:

"i) 'complete' course materials for pupils and teachers intended, broadly speaking, to be used in a certain order (School Mathematics Project, for example);
ii) materials as a resource from which teachers are expected to select those suitable for their own pupils (Humanities Curriculum Project, for example);
iii) exemplar materials or teachers' guides to which teachers are expected to add from other publications or their own resources (Mathematics for the Majority, for example)."

The Council noted a distinct swing, in its own projects, away from the first towards the second and third of these approaches.(5) Such a swing, in part a deliberate move designed to overcome implementation difficulties arising from the research, development and dissemination approach, also expresses teacher disenchantment with the first approach which was borrowed from the United States in the early days of the Schools Council's and the Nuffield Foundation's work in school curriculum development.

The second point to make about dissatisfaction with descending models has perhaps more relevance to American than to British experience. It is the claim which is frequently made that the model has not worked, or, more precisely, that the massive investment in national projects dominated by scholars from the disciplines and by management strategies has paid inadequate dividends in the form of changed schooling. Some truly remarkable attitudes were engendered by this managerially-dominated movement, including that which treated the teacher as a functionary in a technically bureaucratic system whose alleged incapacities could be surmounted by that system's producing "teacher-proof" learning packages. This was sophistry more rampant and over-weening than was witnessed in Classical Greece or any other period of history such as 17th and 18th century Europe, when pedlars of systems enjoyed a great success. As against this view, it is now being argued that ways must be found to involve the teacher in fundamental decisions concerning every aspect of the curriculum. It is a curious quirk that the same educational system which engendered the "teacher-proof" mentality also gave rise to the most fully documented and possibly the most successful-ever large-scale experiment in school-based curriculum development, namely the Eight Year Study.(6)

In the United Kingdom the resistance to descending models does not imply a dismantling of many of the existing control structures, such as examination boards. However, so far as the Schools' Council is concerned, there is a shift in focus, following the Council's stated intention to devote more of its resources to problems of evaluation at the users' level, to dissemination, and to supporting programmes for the education of teachers in the use of materials.

These emerging emphases will have many implications for teacher education policy and practices, since the teacher will be expected to perform tasks of adaptation, evaluation, and development which, while familiar enough to many primary teachers, are less so in secondary education.

4. Further points in the case for school-based curriculum development are closely related to the disparate theories of teacher self-actualisation, achievement motivation, and professionalisation. Teacher involvement in the processes of curriculum making is more consistent with a professional self-image, with a sense of professional achievement and with a more complex sense of personal value and worth than is the functionary image. The remarkable upsurge in recent years of the phenomena of power-sharing, participatory decision-making, populist resistance to technocracy, and other aspects of the so-called counter-culture which directly challenge the values, assumptions and procedures of hierarchy, all provide a congenial climate for school-based curriculum development.(7) They indicate deeply felt needs and wishes for involvement and engagement in social action which are peculiarly attractive to teachers who have the mental and emotional power to become engaged but are restrained by tradition, the demands of office and, possibly, a deeply-seated sense of inadequate social recognition. This analysis suggests that in the future school-based curriculum development will become a movement which engages the energies not only of teachers but even more dramatically of pupils, parents and a large variety of social groups. There is evidence of this already in the spread of student militancy from higher education into secondary schools, the growth of parent action groups, etc.

5. A final argument to be adduced in favour of school-based curriculum development is that it provides more scope for the continuous adaptation of curriculum to individual pupil needs than do other forms of curriculum development. Learning systems dominated by national and international textbooks, by pre-specified "ground to be covered", by external examination syllabuses, and by development projects may be effective in guiding teachers, stimulating their teaching. and establishing a standard of sorts (although just what that standard is constitutes a problem, not a solution, as the achievement studies of the IEA demonstrated). These systems were by their nature ill-fitted to respond to individual differences in either pupils or teachers. Yet these differences, of experience, social class, intelligence, motivation, interest, learning style and so forth are of crucial importance in learning. Furthermore, the establishment of an interpersonal relationship as a setting and context for learning is greatly facilitated by opportunities to structure learning tasks according to the needs of the individual learner.(8)

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At the very least, schools need greatly increased scope and incentive for adopting, modifying, extending and otherwise re-ordering externally developed curricula than is now commonly the case. Curriculum development related to individual differences must be a continuous process and it is only the school or school networks that can provide scope for this.

3. School-based curriculum development and other forms of curriculum development

So far I have mentioned some of the arguments that favour school-based curriculum development and some of the trends that seem likely to strengthen it in the years ahead. We shall come later to some of the criticisms, objections, and difficulties. But it is still not altogether clear just what school-based curriculum development entails and how it is to be related to other kinds of curriculum development. For example, we might ask in what sense school based: the whole curriculum process, or only parts of it, as in the recent French and Swedish innovations of zones of free time? What kind of support does the school need, and what can it realistically expect to receive? What kinds of non-school-based curriculum development should there be and what agencies other than the school will have their part to play? These questions are pertinent to any consideration of a system of curriculum development, as distinct from a philosophy by which greater freedom and spontaneity for the school might be elaborated and justified. In this paper, it is not possible to explore these system-level questions in any depth. They have been discussed in many OECD papers and conferences in recent years and in several of the background papers prepared in the framework of the OECD activity on teacher policies, but never, as far as I am aware, brought together in a single analysis which might serve as a guide to policy. CERI's recently published Handbook on Curriculum Development (OECD, Paris, 1975) is certainly a step in this direction; it would be very useful to extend this work, but it will have to suffice here to say that school-based curriculum development does not presuppose system anarchy; it is in no way a negation of national policy making including the setting of national goals as in Sweden and many other continental countries; its proponents do not minimise the need for local, regional and national support structures such as teachers' and resource centres, regional and national centres for curriculum development, national textbooks and publishing agencies and so forth. Essentially what supporters of school-based curriculum development seek is a recognition of the need to incorporate fully and deliberately into the emerging national structures for curriculum development a carefully worked-out role for the school as a creative, developmental agency, and to design and establish support systems including

teacher education systems which will encourage and nurture school enterprise.(9) These support systems must include guidelines for curriculum development and advice and assistance on problems of design and implementation.

II. THE CURRICULUM DEVELOPMENT PROCESS: A MODEL FOR SCHOOL USE

It is common to start discussions of the curriculum development process with objectives. This, at any rate, is what the technology of educational decision-making encourages practitioners and theorists alike to do.

Curriculum objectives may be formulated at the national level as part of government policy for education, or at the state or regional level, or left to the school itself. Whatever the pattern, and it differs in detail from country to country, it is important to be clear about the source of the objectives, which may be very different from what it appears to be. One of the fundamental weaknesses of the so-called behavioural objectives model of curriculum planning is that within it objectives are necessarily treated as given; similarly the famous "Tyler rationale" provides no adequate account of the source and origins of curriculum objectives.(10) It is curious and disturbing that few of the models for curriculum development available in the published writings of curriculum theorists in Anglo-Saxon countries handle this problem adequately. They all either start with the objectives stage, or precede it with a very partial source, such as "the pupils".(11) This is odd, since the objectives model as used in government and business though without any great success, it appears, does propose a prior stage to the defining of objectives. This is PPBS which assumes an initial, complex situation which has to be changed, or "managed". One of the startling consequences - for theorists at any rate - of school-based curriculum development is that it immediately forces a reconsideration of the whole question of the context within which and for which objectives are to be defined (if indeed they are to be defined at all in the sense intended by behaviourists). The fundamental curriculum questions, what is to be taught, and why, become a stark reality when the teacher has to answer them rather than having them answered for him by detailed syllabuses, study guides, examination boards, inspectors and other parts of the paraphernalia of control. He must look again at the situation he and his pupils are in, the learning situation, the social situation of the school, the context in which his activities are carried out. His objectives, as a teacher and a curriculum developer, cannot be simply deduced from subjects, or accepted from high officialdom, or intuited from a sense of what the child needs, or inferred from his knowledge

of learning theory, although all of these elements have a part to play in the judgements he makes about what are the appropriate objectives. According to the conception of curriculum as experience and as communication between teacher, learner and environment which was adumbrated earlier in this paper, curriculum development at the school level must start, not with given objectives or objectives drawn up abstractly, but with a critical appraisal of the situation, the learning situation as it exists and is perceived at the school level. It is into this situation that curriculum is to be inserted, as a means of extending or transforming it, and it is with this situation that the teacher must start his analysis. This, at any rate, is the alternative school-based curriculum development offers to the system of importing objectives, syllabuses and learning materials into the school and requiring pupil and teacher to fit themselves to these externals.

A model for curriculum development which accepts much, but not all, of the recent thinking about planned change can now be outlined:

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1. Situational analysis

Review of the change situation:

Analysis of factors which constitute the situation

a) External
- i) cultural and social changes and expectations including parental expectations, employer requirements, community assumptions and values, changing relationships (e.g. between adults and children), and ideology;
- ii) educational system requirements and challenges, e.g. policy statements, examinations, local authority expectations or demands or pressures, curriculum projects, educational research;
- iii) the changing nature of the subject matter to be taught;
- iv) the potential contribution of teacher support systems e.g. teacher training colleges, research institutes, etc.;
- v) flow of resources into the school;

b) Internal
- i) pupils: aptitudes, abilities and defined educational needs;
- ii) teachers: values, attitudes, skills, knowledge, experience, special strengths and weaknesses, roles;
- iii) school ethos and political structure: common assumptions and expectations including traditions,

power distribution, authority relationships, methods of achieving conformity to norms and dealing with deviance;

iv) material resources including plant, equipment, and potential for enhancing these;

v) perceived and felt problems and shortcomings in existing curriculum.

2. Goal formulation

The statement of goals embraces teacher and pupil actions (not necessarily manifest "behaviour") including a statement of the kinds of learning outcomes which are anticipated. Goals "derive" from the situation analysed in 1 only in the sense that they represent decisions to modify that situation in certain respects and judgements about the principal ways in which these modifications will occur. That is, goals imply and state preferences, values and judgements about the directions in which educational activities might go.(12)

3. Programme building

a) design of teaching-learning activities: content, structure and method, scope, sequence;

b) means-materials, e.g. specification of kits, resource units, text materials, etc.;

c) design of appropriate institutional settings, e.g. laboratories, fieldwork, workshops;

d) personnel deployment and role definition, i.e. curriculum change as social change;

e) timetables and provisioning.

4. Interpretation and implementation

Problems of installing the curriculum change, e.g. in an on-going institutional setting where there may be a clash between old and new, resistance, confusion, etc. In a design model, these must be anticipated, pass through a review of experience, analysis of relevant research and theory on innovation, and imaginative forecasting.

5. Monitoring, feedback, assessment, reconstruction

a) design of monitoring and communication systems;

b) preparation of assessment schedules;

c) problems of "continuous" assessment;

d) reconstruction/ensuring continuity of the process.

Clearly the scope of any systematic, comprehensive inquiry the school might itself undertake along the lines suggested by stage 1 of this model is enormous. Some of the decisions will be made for the school, for example by law, decree, administrative controls,

guidelines, etc.; others will come naturally to a competent professional; many could only be reached after some specially initiated inquiries had been undertaken. The model attempts to outline the scope of possible action and to some extent the inter-relatedness of parts; it would be the task of any school curriculum group to map out a curriculum development programme for the school - or for sections of the school - within this framework, proceeding only so far in certain directions (e.g. data collection on community assumption) as was practicable. The model may be used for purposes of designing a curriculum, for observing and assessing curriculum systems in use, and for a more theoretical analysis of the nature of the task of curriculum development. In this paper, it is not possible to present its many components in more than an abbreviated fashion.

There is a temptation to suppose that there is a logical order in the five stages of this model, and in designing a system, whether for manual or computer use, this temptation can easily be succumbed to. It is certainly possible to produce elaborate systems diagrams of the curriculum process.(13) Yet there may be sound institutional and psychological reasons for intervening first at any one of the stages not for following the arrows on those increasingly elaborate diagrams. Furthermore, in a practical planning operation, the different stages can be developed concurrently. There is plenty of evidence that despite the enticements of the technological approach, teachers do not, in fact, proceed in a linear fashion from goals to evaluation.(14) The model outlined does not presuppose a means-ends analysis at all; it simply encourages teams or groups of curriculum developers to take into account different elements and aspects of the curriculum development process, to see the process as an organic whole, and to work in a moderately systematic way.

This model differs from the numerous models available in curriculum publications deriving from the Tyler rationale in at least these respects:

1. It identifies the learning situation, not materials production and change strategies, as the major problematical area of curriculum development; encourages developers to think educationally about the situation which is to be changed not about how to implement pre-designed models and techniques of change; and suggests, in a preliminary way, a number of relevant categories in the situation, to which teachers ought to be attending.
2. It accepts that practitioners do not readily accept the command to "specify your objectives", and encourages them to enter the model at whatever stage they wish, e.g. the real problem as perceived by the teacher may be inadequate examinations, or poor text materials - either can be the starting point of developmental thinking.

3. It is not committed to means-ends reasoning but accepts that an end - an objective, for example - is only meaningful in and through activity.
4. It makes no assumptions about the depth and scale of school-based inquiries into any one of the stages identified beyond the basic point that effective and justifiable school-based curriculum development requires that criteria be formulated and schools assisted in their endeavours to satisfy these criteria.

III. SCHOOL-BASED CURRICULUM DEVELOPMENT: OBJECTIONS AND DIFFICULTIES

Part of the process of understanding what school-based curriculum development is consists of recognising the difficulties and problems to which it will give rise. Several of these may be identified, but not for the sake of documenting research findings, or discussing problems of developing innovations and managing change, which have been discussed in the foregoing paper by R. Bolam. The problems in this section are all of a kind which pose a challenge to teacher education. The question to ask, therefore, is how far does teacher education policy and practice recognise the pressures that are operating increasingly on teachers, as their roles in the curriculum development process are extended.

1. The model, of course, makes a number of assumptions about the teacher. These may be summarised in an idealised description of the role that is presupposed for him. He is conceived as a change agent, diagnosing a situation, preparing objectives, designing schemes of work, devising implementation procedures, implementing and evaluating the effects of his treatment. He understands the processes of curriculum development and is competent in carrying them out. He will be provided with the necessary resources and support structures. This description, it will be rightly pointed out, does not match what we know about teachers and teaching. The level of expertise, motivation and resource are inadequate; the traditions in many countries point in quite other directions; and all kinds of pressures militate against the extension and development of teachers' professional roles. Teacher role analysis and a realistic appraisal of the changing demands being made upon him are needed in the teacher education institutions.

2. As has been stated already, school-based curriculum development does not centre all curriculum decisions in the school. It does, however, acknowledge or confer upon the school the right to design curricula, utilising whatever outside resources are available to them, e.g. syllabuses and teaching materials prepared by national

committees and project teams. It also confers upon schools responsibility for assessing pupil performance, again drawing upon such external resources as national guidelines, standards and so forth. These rights and responsibilities, in order to be realised in practice, require a high level of organisation and organisational skill which do not exist in most schools. Thus, it may be objected that school-based curriculum development cannot be introduced or extended except by taking into account and in many cases redefining the responsibilities of other agencies.

3. Redefining organisational responsibilities would not be enough since successful school-based curriculum development would depend upon a substantial infrastructure of support. This is an argument for proceeding slowly, or across a broad front, not an objection to school-based curriculum development as such.

School-based curriculum development requires various support structures and a developed capacity in teachers to use the structures that are available to them. It cannot be introduced as an isolated reform and it cannot be introduced as an effective reform unless other structural changes take place, for example the provision of teachers' resource centres. Even quite modest, small-scale development activities at the school level will be messy and damaging to all concerned if they are not adequately supported.(15) How far lack of resources in a period of financial stringency will constrain the build-up of support services it is impossible to say. It is a task for administration to analyse needs and to draw up and cost alternative support structures. It would be reasonable to attempt to cost school-based curriculum development, though not in absolute terms as a supposed addition to but as a substitute for some parts of the national apparatus of curriculum making, and this cannot be done easily. In the United Kingdom, it is within the power of the Schools' Council to deflect some of its expenditure from national projects, of which many observers feel there are far too many already - to the support of school-based curriculum development, but we lack information at present on how cost effective this might be.

4. Another objection which might be raised to school-based curriculum development is that it seems to confer excessive power on the teacher and take insufficient note of the participatory principle which requires a much greater diffusion of power, to pupils, parents, community groups and so forth. In the accompanying diagram the manner in which different groups and agencies might participate in school-based curriculum development is indicated. There need be no concentration of power in teachers' hands, if levels and types of decision-making are so specified as to indicate precisely the roles to be exercised by other agencies. Effective school-based curriculum development requires that some such analysis be undertaken and, so far

THE PARTICIPATION OF VARIOUS GROUPS AND AGENCIES
IN SCHOOL-BASED CURRICULUM DEVELOPMENTS

Process	Agency	Role
Situational analysis	Teachers, heads of school departments, school Principals	D_1 D_2
	Pupils	D_2
	Parents	D_2
	Consultants (local authority)	A
	(college and university)	
	(other schools)	
	(research agencies)	
	Administration	S
Objectives	Teachers, etc.	D_1
	Pupils	D_2
	Parents	D_2
	Consultants	A
	National governments and government departments	A
	Project teams	S A D_2
	Administration	S
Design	Teachers, etc.	D_1
	Pupils	D_2
	Parents	D_2 S A
	Consultants	A
	Project teams	S A D_2
Implementation	Teachers, etc.	D_1
	Pupils	D_2
	Administration	S
Evaluation	Teachers, etc.	D_1
	Pupils	D_2
	Consultants	A
	Government departments	S A
	Administration	S

A = Advice
S = Support
D_1 = Decision
D_2 = Discussion

Note: For simplification this diagram does not specify either the full range of agencies or of development roles. Agencies include: teachers' and resource centres (Administration; Government departments); examination boards (Administration; Government departments); inspectors (Administration; Government departments); employers; parent teachers associations; trade unions, etc.

from centralising power in the teaching profession, this type of inquiry might help to make education a more participatory process than it commonly is at present. Of course, the distribution and sharing of responsibility themselves pose major educational tasks. We should not be talking merely about the education of teachers but of all those who are to be involved in the curriculum process. In the United Kingdom, until relatively recently, there were very serious deficiencies in the educational provision for administrators and many gaps are still very apparent. Nobody would suppose that educational resources have been adequately deployed to facilitate rational participation at all levels in the curriculum development process, a point which probably holds true of all countries.

5. Another objection to school-based curriculum development is that it will produce an atomisation of schooling: disunity in policy, lack of uniform provision, varying standards and opportunities. Of course, this objection would be stronger if it could be shown that any educational system has been able to achieve uniformly high standards. Furthermore, there is an artificiality about national standards, syllabuses, examinations and textbooks which is reflected in the enormous gulf between what is believed, provided and stated, on the one hand, and actual achievements on the other. The fact of a common syllabus does not, given the complexity and diversity of cultural environments, in any way guarantee common learning experiences and it is a function, not merely an artifact of national standards to codify differences. The myths surrounding national standards of provision, opportunity and attainment in curriculum matters ought themselves to be exploded instead of being used as a self-justifying means of undermining the case for school-based curriculum development.

Arguments for a common curriculum that have been advanced in recent philosophical studies, even if they were accepted, do not destroy the case for school-based curriculum development.(16) There are other mechanisms than standardized syllabuses, textbooks and examination for developing common learning experiences and attaining a reasonable homogeneity of attainment. By far the most powerful of these mechanisms is teacher education, especially at the in-service stage. It is to the implications of school-based curriculum development for teacher education that we now turn.

IV. TEACHER EDUCATION

1. Some policy issues

A policy for teacher education must assume or express views about responsibility for curriculum. To take an obvious example: where teachers exercise responsibility for all major curriculum decisions,

even if under various kinds of constraints, the task of teaching for which the training institutions prepare them is very different from that where major decisions are taken for the teacher. In the former case, unless teacher education does equip the teacher as a curriculum developer there will be a serious gap between training and classroom reality; in the latter case, that particular gap will not occur. From this point of view, there is an intimate connection between curriculum development and teacher education, and the connection is being increasingly recognised in those countries where school-based curriculum development is part of the present system. The connection is also recognised, sometimes rather belatedly, in those systems where massive investment in curriculum materials production have not paid off because of implementation failures. It is coming to be realised that dissemination is more than just an apparatus of communication and persuasion, like advertising or political propaganda. Teachers at the very least must be trained to use the new materials and in some institutions they are being trained on and in the use of these materials in such a way that they are contributing to the further development of the curriculum package - hence the so-called open-ended curriculum.(17)

Traditionally, teachers have not been trained as curriculum developers even though, without benefit of training, many of them have acquired the necessary understanding and skills as part of their formation as classroom practitioners. Indeed, there have been virtually no training programmes anywhere for curriculum developers, except in the United States - and even they were largely by-passed in the curriculum reform movement of the fifties and sixties. A first requirement of policy for teacher education, in the context of a discussion of school-based curriculum development, is to recognise that this movement exists, that it is growing, and that it places very heavy demands on the competencies and commitment of teachers. Questions of strategy and resource allocation are secondary since we must know for what responsibilities, roles and relationships we are educating our teachers before deciding where are the gaps in our present system. It is unfortunate that, despite its avowed commitment to teacher professionalism and its excellent proposals for teacher in-service education, the James Committee so presented its findings as to give minimum prominence to the tasks that teachers are being educated to carry out as distinct from the stages of their preparation, and the institutions which are to play a part. This is essentially strategy-type thinking; what is equally needed is the analysis of problems and issues in teaching - of which curriculum development is one.(18) Consequently, the James Committee has little of interest to offer to the continuing debate on the content of teacher education.

2. Initial courses: self-selection and curriculum orientations

School-based curriculum development is so radical in its longer-term implications for schooling that re-thinking of every stage of the teacher training process is required, from initial selection to certification and subsequent in-service treatment. Since teacher self-image, motivation and professional commitment are involved, the selection process should aim to take into account those characteristics of students that seem to correlate with the kind of professionalism outlined in this paper. Our present procedures are very inadequate and we can have little confidence that they will be significantly improved in the years ahead. A more practical way of looking at this problem is to accept that selection for initial training is not a scientific process at all, and that self-selection through professional engagement is more effective. Since, in the United Kingdom at least, a substantial proportion of people trained to teach seem to have left the profession within five years of qualifying, it may be better to accept that the teacher who is to act as curriculum developer is the one who stays on beyond the initial stages and has become a career teacher by his or her late twenties. The younger, more mobile and less committed teacher must accept a role as member of a curriculum development team, under the direction of someone akin to the master teacher. This suggests a corporate approach to curriculum planning, which could be justified on many other counts than expediency, and correspondingly a form of training that prepares the young teacher for group decision taking, committee work, group assessment and related procedures which run counter to the individualistic tradition of closed-door class teaching. Course structures which divide "subjects" from each other and from "education", and which treat "education" as a series of discrete sub-disciplines, are all too prevalent, and reflect a feeble academicism rather than imaginative and forward-looking assessments of the tasks and responsibilities of the teachers.

The initial training programme cannot successfully predict, amongst men at least, either the early leavers from the profession or its future leaders. Thus the initial programmes should provide courses and experiences for all trainees that get to the foundation of curriculum development, with particular emphasis on the team-based role of the young teacher. Many courses are in fact moving in this direction as is amply demonstrated in the papers prepared in the framework of the OECD activity on teacher policies. In these courses, the student encounters curriculum development, not as yet another abstraction, body of theoretical knowledge, or characteristic of the anonymous educational system but as a practical task which he has to perform in training <u>because</u> it is the kind of task he will be performing in school. With this focus, relevant theoretical knowledge

can be built around the core of practical tasks. For example, the behavioural objectives approaches to curriculum design have been taken up by psychologists of learning and by philosophers critical of means-ends models of human action; the concept of the situation, while sociological in origin, is richly inter-disciplinary, since it gives rise to questions about interest, needs, social contexts, the disposition of power in the school, and so forth. Just because school-based curriculum development centrally involves the teacher, as an approach to curriculum theory and to educational studies more generally, it can be a most powerful means of engaging student interest. It may be speculated that a consequence of this engaging of interest is that the very motivations, skills and resourcefulness upon which effective school-based curriculum development depends will begin to be developed within the training programmes. At the very least, we can anticipate that some interesting bridges will be thrown across the theory-practice divide as courses in curriculum theory and development emerge. There are already many examples of such courses within the new B.Ed. and three-year Certificate of Education courses in Britain, but they can hardly be said to be in a satisfactory state given the tensions and uncertainties that pervade teacher education.

3. Curriculum studies in post-experience courses

Much may be done to develop a curriculum expertise in the pre-service course, through units of study in curriculum design, team teaching, classroom interaction studies, assessment and evaluation, inter-disciplinary teaching, and so forth. Nevertheless, the sense of need for systematic training in curriculum development cannot be expected to emerge strongly in students when their primary fears have to do with self-image, ill-disciplined classes and the basic capacity to survive in a school situation. The more practical concepts and techniques of curriculum development are more congenial to experienced teachers, for whom also the philosophy of school-based curriculum development, despite their disenchantment with some aspects of teaching and schools, is more acceptable than it is for the pre-service student. The primary focus of teacher education for school-based curriculum development should be the post-experience or in-service stage of his training. By the time this stage is reached, the teacher's membership of the profession has stabilized. Many of his career lines have emerged, and he has a clearer perception than the trainee teacher can have of the practical constraints and opportunities affecting any work he may undertake in curriculum development.

The James Report in Britain may be viewed as a key factor in the readjustment and reorientation of teacher education which is now taking place in that country. Inasmuch as this Report or more precisely the White Paper and governmental action since have contributed

to the deep disillusionment and demoralisation which is now characteristic of teacher educators, and has helped to sever the growing connection between colleges of education and universities, it is regarded by many teacher educators in Britain as a disastrous document, reflecting and in turn sustaining an incoherent government policy. Fortunately a few institutions have escaped the mania for dismemberment and combination, and the McNair-Robbins conception of unified teacher education within the university sector has been very successfully realised in one institution, the Education Centre of The New University of Ulster.(19) While the James Report and the subsequent White Paper have been criticised for destroying an emerging pattern of college-university relationships in pre-service education, there is widespread agreement that the Report's proposals for a massive expansion of in-service education were sound. For financial reasons, these proposals, taken up in the White Paper, may not be implemented on the time-scale then envisaged, but the commitment of government and profession alike to a long-term policy of universal in-service education is clear. In the light of that commitment it is now feasible in the United Kingdom to talk of periods of full-time in-service education for all teachers, to plan for teacher release, and to begin to prepare appropriate courses and other learning experiences. It is obvious that, in a system where already in most primary schools and in many secondary modern and comprehensive schools, teachers have a wide measure of curriculum control, these in-service programmes will include a considerable element of curriculum theory, design and development. However, much work remains to be done in designing appropriate courses and other learning experiences corresponding to the different needs of teachers: single subject specialists, Heads of Department, Counsellors, Directors of Study, school Principals, and so forth. School-based curriculum development does not imply a uniform role and not all teachers need or are ever likely to become expert in all aspects of curriculum development.

It is the responsibility of the teaching profession, including colleges, universities, professional associations of primary and secondary teachers and teachers' centres to formulate aims and to plan the content of these in-service programmes. The local education authorities, especially through their advisory services and inspectorates will play a large part in organising the programmes or sponsoring their organisation in colleges, teachers' centres and universities, and within selected schools. It is clear that a quite complex structure will be required, and that the old idea of short and long courses will not do. Nor will the old distinction between teacher training and curriculum development make much sense. The financial support needed to pay for released time, fees, course materials, clerical and technical assistance, etc., will involve both

the Department of Education and Science (and the relevant departments in Scotland and Northern Ireland) and the local authorities. So far as sources are concerned, the professional framework of recognition of awards and advice on course content will require to be set up through new regional and possibly national bodies. Clearly, the task of universalising and institutionalising in-service education for teachers is enormous, and it cannot be expected that the system will be in full swing before the end of this decade.(20)

At least on a trial basis, and so far as school-based curriculum development is concerned, this in-service teacher education programme might include the following:

1. Short, intensive workshops in curriculum design, held in colleges and universities.
2. Inter-school working parties on particular aspects of curriculum development, along the lines of the teachers' centres study groups which have been operating for several years.(21)
3. Joint programmes involving selected schools and training colleges and university departments whereby curriculum development teams made up of experienced teachers and students in training share a programme of: teaching practice, released time for teachers; in-service courses for teachers; school-based research and development for college and university staff.(22)
4. Consultancies, whereby specialists in particular techniques relevant to curriculum development organise at least workshops in schools.(23)
5. Advanced courses in curriculum design leading to normal university awards.

It is not possible or necessary, in this paper, to outline themes and topics for substantial courses in curriculum design and development, although a number of issues to which these courses should be addressing themselves have been identified. In Britain, the most ambitious and potentially the most influential cource of this nature is now being produced by the Faculty of Educational Studies of the Open University. This course, a re-make of the earlier course "Curriculum-Context, Design and Development", incorporates the full apparatus of Open University course production: print materials, assignments, and television and radio programmes. It will be taken by thousands of experienced teachers seeking to improve their qualifications and update their knowledge, and it aims to provide a comprehensive overview of curriculum theory, design problems and tasks, innovation theory, and tasks of implementing change. In conception, it is the kind of course required by all teachers who are to take a responsible part in curriculum development, but, in the United Kingdom at any rate, it

will be many years before the public authorities or the training establishments will have been able to organise the structures whereby all professional teachers will in fact have this opportunity.

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NOTES AND REFERENCES

1. Even in relation to the pressures to which they are subject, the universities, in any case, have always enjoyed certain subtle freedoms to negotiate, as Professor Armytage points out, in discussing recruitment to the Civil Service. For a long time recruiting "was dominated by Oxford Commissioners like W.J. Courthope or Cambridge ones like Sir Stanley Leather. These two and their colleagues, by running the examination for the Class 1 or Administrative Grade, provided the strongest justification for the curricular status quo at Oxford and Cambridge for many years. Indeed, before English was introduced as a Tripos subject, the university authorities consulted Sir Stanley Leather, the first Commissioner of the Civil Service, as to whether his Commissioners would recognise it as the examination. When he said yes, this removed the objections of the academic mandarins". Armytage, W.H.G., "Report of the DES/ATCDE Conference on the Sociology of the Curriculum". Padgate College of Education, 1971. Milner. (Mimeo.) (The incident is recorded in E.M.W. Tillyard, The Muse Unchained, Cambridge: Cambridge University Press, 1958.)

2. Nevertheless, the case for national control has not gone by default. It is vigorously argued in White, J.P., Towards a Compulsory Curriculum. London: Routledge and Kegan Paul, 1973.

3. The Schools Council. Change and Response. London: HMSO 1965, p. 34. On examinations, however, the Council expressed its determination to uphold a principle of "order" together with one of "freedom" (ibid Section IV "Examinations").

4. The Schools Council. Working Paper on Schools' Curricula and Examinations. London: HMSO 1964.

5. The Schools Council. Pattern and Variation in Curriculum Development Projects. London: Macmillan, 1973, pp. 40-41. J.G. Owen, one of the first of the Council's Joint-Secretaries, points out that the Council's early contributions included setting up a framework for national level analysis of curriculum problems which did not exist at that time in England and Wales: The Management of Curriculum Development. Cambridge: Cambridge University Press, 1973, pp. 59-63. The creation of a framework is one thing; a strategy of planned change is another. P.H. Taylor rightly

criticised the Council's deficiencies in this respect in "Purpose and Structure in the Curriculum 1", Educational Review, 19, 3, June 1967. In a recent paper, one of the current Joint-Secretaries, A.J. Light, outlines the Council's proposals for remedying this (unpublished paper, CECD/CERI Seminar on Curriculum Development, Tokyo, 1974).

6. Aiken, W.M. The Story of the Eight-Year Study. New York: Harper Bros., 1942.

7. Musgrove, F., "The Curriculum for a World of Change" in Taylor, P.H. and Walton, J. (eds.) The Curriculum: Research, Innovation and Change. London: Ward Lock Educational, 1973. However, it must be admitted that many teachers express strong satisfaction with the status quo, including the structure of external examinations, e.g. the sixth-form teachers studied in Taylor, P.H., Reid, W.A. and Holley, B.J., The English Sixth Form. London: Routledge and Kegan Paul, 1974. There are indications in other countries, too, that the teacher's desire for participation is less than wholehearted: Friesen, D. and Holdaway, E.A., "The Curriculum Debate in Canadian Education", Education Canada, 13, 1, March 1973.

8. Morris, B.S., Objectives and Perspectives in Education. London: Routledge and Kegan Paul, 1972. Part 2, "The Perspective of the Personal".

9. Progress in this direction has been made in the OECD/CERI project, "Creativity of the School" which has been concerned inter alia with processes of planning, organisation and administration to facilitate and support school innovativeness.

10. The rationale is expounded in Tyler, R.W., Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1949. It is criticised in Kliebard, H.M., "Reappraisal: the Tyler Rationale", School Review, February 1970, and Sockett, H., "Curriculum Aims and Objectives: Taking Means to an End", Proc. Philos. Ed. Soc. of G.B. VI, 1, January 1972. Alternative models are proposed in Doll, W.E., "A Methodology of Experience: an Alternative to Behavioural Objectives", Educational Theory 22, 2, Summer 1972, and Walker, D.F., "A Naturalistic Model for Curriculum Development", School Review 80, November 1971.

11. For example, Hilda Taba's well-known text Curriculum Development: Theory and Practice. New York: Harcourt, Brace, Jovanovich, 1962.

12. This point relates to arguments by Eisner, E., "Instructional and Expressive Educational Objectives", AERA Monograph No. 3, Chicago: Rand McNally, 1969, and Stenhouse, L., "Some Limitations on the Use of Objectives in Curriculum Research and Planning", Pedagogica Europaea VI, 1970/71, 'S-Hertogenbosch,

L.C.G. Malmberg N.V., Uitgever, 1971. It derives from Dewey's theory of aims: cf. Dewey, J., Democracy and Education. New York: Macmillan, Ch. 8 "Aims in Education", and Human Nature and Conduct. New York: The Modern Library, 1922: "ends arise and function within action. They are not ... things lying beyond activity" (p. 207).

13. A systems approach is adopted in Biddle, D.S., "An Investigation into the Use of Curriculum Theory in the Formulation of a Systems Model for Constructing and Evaluating Secondary School Geography Curricula in England and Wales", unpublished Ph.D. thesis, University of London, 1974. The educational technology journals are replete with papers applying systems concepts to curriculum process.

14. Taylor, P.H., How Teachers Plan their Courses. London: National Foundation for Educational Research, 1970.

15. This point suggests the need for so-called developed as well as developing countries to think more seriously about phased change, cf. Beeby, C.E., The Quality of Education in Developing Countries. Cambridge, Mass.: Harvard University Press, 1966.

16. White, J.P. op. cit. and Hirst, P.H. and Peters, R.S., The Logic of Education. London: Routledge and Kegan Paul, 1970.

17. An interesting change in emphasis reflecting this awareness is the training programme organised by Curriculum Development Associates, Washington, D.C., under the leadership of Mrs. F. Link. "Man a Course of Study" has become an open-ended social studies curriculum, developed through training seminars and in use in schools, as a result of C.D.A's work.

18. Committee of Inquiry, Chairman Lord James: Teacher Education and Training. London: HMSO, 1972.

19. The Report of the Committee which in 1965 recommended the founding of this University makes ironic reading in the light of the current disarray of teacher education in Britain: The Robbins-type university school of education, of which the Education Centre at Ulster is the only example in the United Kingdom, is referred to as "only a stage in a process of development which will lead ultimately to the removal of the traditional lines of invidious distinction drawn between teachers 'trained' in a training college and those 'educated' at a university". Higher Education in Northern Ireland, Belfast: HMSO, 1965.

20. Since R. Bolam has dealt with the emerging institutional infrastructure for this programme in the preceding article, it is not discussed here.

21. The function of these groups in relation to a combined effort of local curriculum development and self-help in-service

education is discussed in Rudd, W.G.A., "Teachers as Curriculum Developers: a Second Generation Viewpoint" in Taylor, P.H. and Walton, J., The Curriculum: Research, Innovation and Change. London: Ward Lock Educational, 1973.

22. Skilbeck, M., "Graduate Training, Curriculum Development and the University Departments of Education", Education for Teaching 82, Summer 1970.

23. The best recent example of a major consultancy exercise in British schools is reported in Richardson, E., The Teacher, the School and the Task of Management. London: Heinemann, 1973. Miss Richardson is now organising short conferences that have a training function for teachers at the University of Bristol School of Education.

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Part Three

TEACHERS' CENTRES
SOME REFLECTIONS ON THE BRITISH EXPERIENCE(*)

*) This report was prepared for the Conference on Teacher Policies, 26th-29th November 1974, by L.C. Taylor of the OECD Centre for Educational Research and Innovation.

I. WHAT IS A TEACHERS' CENTRE?

In the early 1960s in England there were no Teachers' Centres; by 1969, some 300; at the last count, in June 1974, 505. What exactly is a Teachers' Centre, we may ask, that it should have spread so fast?

We shall get no clear answer. In an attempt to classify this genus we can scarcely get beyond two elements: first, a Teachers' Centre is a supporting agency; second, teachers themselves are active in it. Perhaps a third: the one physical feature common to all Centres, it has been said, is an apparatus for making tea.

This wild variety needs explanation. The liberty of the teacher in England to decide what and how he will teach is more than a legal fiction. There are limits, of course - such as exam requirements, the opinion of other teachers, the patience of parents and children - but none of these, not even nowadays the examinations, at all closely constrict.

In some centralised countries, a government Inspectorate, acting both directly and also through head-teachers, forces an orthodoxy in the classroom; but in England, the financial and administrative decisions in education, within broad indications of national policy, rest with numerous local authorities: the central Inspectorate claims no power to command the teachers, and in imitation, local Inspectors have become "Advisers". In some decentralised countries, such as the United States, it is the community which monitors what's taught in the schools. A School Board may well short-list or even prescribe the textbooks to be used, and act as a tribunal to arraign unsatisfactory teachers. In England, trade unions and professional associations are strong enough to secure the independence of their members against all outsiders; in the schools a dismissal for incompetence or idiosyncrasy has become a rare achievement. As a consequence of this relative freedom from official or social pressures, when teachers feel some need their response does not run in a mould of national or community policy; rather it is shaped by the judgement of individuals and professional groups.

Arrangements which are locally specific and pragmatic, however, will seem chaotically varied when viewed as a whole. The confusion in England deepens because of what we may call the "Club-spirit" - the tendency for individuals to form voluntary associations and for these to achieve institutional form. The purposes of a club may be so loosely defined that numerous groups can pursue different aims

under its hospitable roof, constituting in effect clubs within a club. Alternatively, a club may be more particular, and therefore exclusive, whether because its constitution so requires or its members so prefer. Those unable to force an entry will then start another club - and the next group a third, and so on. Such a multiplication of associations explains the variety of English institutions. Further, a native conservatism ensures that these formal associations, though they decline and though the original differences between them erode to mere formalities, none the less potter on. Hence the confusion of English institutions. This habit of starting something new while allowing what's old to continue as long as it may, of infiltration and co-existence rather than conquest and replacement, means that in England innovation on an experimental scale is easy, and general change - dependent on local persuasion and individual conviction - usually slow.

The untidy pattern which results, true of education in general, is already a feature of the Teachers' Centres. Yet before we look at examples of the diversity of response they embody we should ask first why they began at all. What compelling concerns made teachers in the 1960s want to collaborate as never before?

II. WHY TEACHERS' CENTRES AROSE

Teachers' Centres crystallised from a large and obscure mixture of needs but two factors acted as the precipitants. First, certain proposals by Sir David Eccles in the mid-fifties led teachers to fear the imminence of a centralised, Ministerial direction of curriculum. The Lockwood Committee in response proposed the establishment of the teacher-dominated Schools Council. The Council in turn (Working Papers Nos. 2 and 10) urged the development of a network of Teachers' Centres "with a steering committee of local teachers and no hierarchy of control". Second, the Nuffield Foundation's Primary Mathematics Project in 1964 required its 14 "pilot areas" to establish Teachers' Groups, and these groups - through their regular meetings, their acquisition of equipment and, often, premises - turned into Teachers' Centres. Thus, in their historic origins the Centres portrayed what have remained their key points of emphasis - a determination to secure for teachers a high degree of professional and local independence, and an active share in the development of new curricula.

Having noted these major and proximate causes, we should now look at that larger agglomeration of needs and uncertainties which led teachers to gather in Centres. Since schools are part of the larger society and are expected to help initiate the young into the ways of the adult world, changes in society must in time be reflected in both the relationships and also the formal curriculum of the

classroom. Thus, recent and rapid changes in styles of work, of leisure, authority, morality and so on have disturbed the stagnant content and methods embodied in the traditional curriculum. Indeed the appropriate response to present change seems to be something more profound than the substitution of a new set of particulars for the old. Because nothing now seems certain except perpetual uncertainty, the very notion of children learning by means of received instruction and the imitation of set models, however sedulously updated, has begun to seem inappropriate. More active skills - in exploration, observation, discussion, collaboration, experiment - these hold out better promise of survival in unsettled times. Of course, dissatisfaction among teachers with what was done before is matched by disagreement about what should be done now; but if, so far, few teachers have actually altered their classroom practices, none can have escaped entirely the general debate.

In a climate of uncertainty, proposals and innovations flourish. For the teacher, what has long been established is suddenly threatened by alternatives to which he must respond, whether to accommodate or to reject. We can usefully survey the novelties that now present themselves, noticing how they lead the teacher to look for help outside his own school, and so tend to justify the establishment of some sort of Teachers' Centre.

- New syllabuses and methods in familiar subjects - maths, sciences, languages .... Where should the teacher go to get information about them, and opinion of the sort he knows will be realistic?
- If the teacher actually adopts a new "official" syllabus, he will need initial in-service training, useful tips from other participant teachers, and support when he runs into difficulties. Where will he find all this? The same applies to locally generated improvements. As the Plowden Committee report put it: "Local centres are also invaluable in supporting the innovations introduced by individual teachers, the source of most educational progress.... They can provide opportunities for teachers to meet others who are a little ahead of themselves but whose practice is within their reach".
- In-service training to be effective often needs to be continued over a substantial period of time. Can such training be provided locally, thereby avoiding long or frequent residence away from home?
- In the primary school, "the integrated day" (now fully or largely operating according to the Plowden Report, in about half of all English primary schools) dissolves the normal subject and time divisions. A child spends long sections of

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the day with his class-teacher. He chooses freely from a wide range of activities, following (within reasonable limits) his own interests at his own pace, acquiring in the process, it is hoped, essential skills in reading, "research", writing calculation, observation, listening, discussion, collaborating with other children, handling various media and so on. When a teacher tries to deal with the needs of children separately, retail, rather than in the conventional class, wholesale, he has to cope with unprompted questions, and unanticipated problems of the widest possible range. He badly needs to draw upon the skill and knowledge of other teachers. He is likely especially to seek advice on how to ensure that individual children, for all their diverse activities, manage to learn what they must for the further stages of their schooling.

- At the secondary level, the tendency towards integration across subject boundaries takes less complete form, but the biologist who finds he has to teach the physics of a combined science course, or the geographer who has a class for "humanities", need the help and reassurance of those knowledgeable in such matters.

- Certain teaching material can be used by a teacher only if it is adapted. For example, timetable clashes may mean that a BBC or ITV broadcast must be missed unless it's recorded - or the broadcast, recorded or not, has little value without additional "follow-up" activities. Thus, teachers at first had to devise their own work-cards to accompany the BBC "Maths Today" series. Or a complete course such as Nuffield Physics, because it requires equipment on too expensive a scale for a school to bear or insists on some methodological novelty to a degree which the teacher thinks excessive, may need very substantial modification. In all such cases a teacher will naturally see whether colleagues elsewhere will share the burden of adaptation with him.

- Some new courses confine themselves to producing teachers' handbooks: any materials used by children must be made, often from models suggested in the handbook, by teachers themselves. Nuffield Junior Maths is of such a sort. Sometimes, indeed, a project is scarcely more than a clearing house, its publications essentially a collection of materials contributed by teachers - an example is the "Maths for the Majority Continuation Project". Such projects do not merely encourage, they actually require teachers to collaborate.

- Pick up the Times Educational Supplement or any other educational journal ..... pages are occupied by advertisements for the "new media" of teaching. School capitation allowances

are too small to shrug off mistakes cheerfully as "experience". What's worth having? How is it most effectively used? What brand is the best buy? Where can a teacher meet other teachers who know the answers, and, if possible, see and use the equipment himself?

- Both the "11+" exam and the tripartite system of secondary education it supported are now in disrepute. Research has confirmed that selection, however subtle, inevitably reflects factors other than a child's native intelligence. Yet once the selection is made, then - with rare exception - the child adapts to the expectations of teachers, parents and other children. So selection becomes a self-fulfilling prophecy, and those already hampered by their home environment find themselves further depressed by the company they must keep at school. The hope of setting this right has caused the spread of comprehensive schooling. As a consequence, teachers previously in grammar schools find themselves faced with children they once thought to be the invention of dyspeptic novelists: adolescents, intractable and sometimes deliquent, profoundly uninterested in the standard repertoire of instruction, unable to read, unmoved by bourgeois ambitions, without hope of passing exams, from homes that provide neither support nor control - and so on. Advice and consolation from colleagues with experience in less protected schools is ardently sought.

- The disenchantment with selection doesn't stop at a reorganisation of the school system: it penetrates the classroom itself. Already in a majority of primary schools mixed ability classes are the norm: now "unstreaming" seeps up into the lower classes of the secondary school. But the efficiency of instruction depends upon how well it is matched to the recipient. If there is only <u>one</u> source in operation at any time (usually the teacher speaking) then the audience must be tuned to the level of transmission; it must be reasonably homogeneous. An unstreamed class, by definition, is not. If we have, in the same classroom, children with widely different learning capacities we will often require <u>multiple</u> sources of instruction in use at any one time. However, few courses are yet available which set out their content at different levels of difficulty, and so designed that children can work through them independently at different rates of progress. Publishers doubt whether there is yet a sufficient market to support such courses, especially after the debacle of "programmed learning".

To fill the void, teachers try to make their own individualised or group activity materials. But whereas talking to a class is relatively easy, to write things down in a form children will understand, to clarify obscure points by diagrams or illustrations, to collect suitable readings and concoct practical exercises... then to stencil, duplicate, collate, bind... all this takes a lot of time. Teachers hope to share this burden, and to get technical and clerical assistance. Is there some Centre from which help could come?

- Changes in subject content, in method, in the age of transfer between schools - all these, if children are to enjoy reasonable continuity, enforce consultation between primary, middle and secondary schools. For example, teachers in a secondary school who adopt, say, "new maths", will be anxious that children should have a suitable introduction at the primary stage; teachers in primary schools who introduce the "integrated day" will want their secondary colleagues to realise the difficulty children may have in adjusting to a conventional and passive style of learning. In some regions, children now transfer at 13 or 14 from an intermediary "Lower" or "Middle" school rather than as heretofore from a primary school at 11. That puts them two or three years nearer their first public exam. The teachers in the Upper School, feeling they now have all too little time "to put things right" become acutely concerned with the grounding their pupils get elsewhere. Co-operation between teachers across the normal primary/secondary divide has always been desirable, of course: rapid change makes it imperative.

- From 1972, the Raising of the School Leaving Age to 16 (ROSLA) took general effect. Previously, in affluent places in the South of England as many as 80 per cent of the age group already stayed voluntarily at school until 16 (and many beyond that), but the figures in the North commonly ran between 40 and 60 per cent. Whether those who are now compelled to stay at school constitute a minority or a majority, their needs present a difficult challenge. To many of them orthodox examination work seems neither attractive nor relevant. Many schools hope instead to offer them an extensive choice among academic, social and practical activities, varying class teaching by individual and group work, and with preparatory experience in the world beyond the school.

The consequent alteration in the relationship, between pupil and teacher, school and society, finds expression in a number of Schools' Council ROSLA projects. The "Humanities Project",

for example, has selected themes of importance to teenagers - love and marriage, war, the world of work, etc. - and has published collections of documents to support informed discussion in small groups, the teacher being cast not as instructor but as a "neutral chairman". An earlier Schools' Council Working Paper encouraged teachers to use the school as a base for active community service by pupils, and to build a part of their curriculum around this experience. Such "courses" scoop the teacher out from the shell which desk and books provide. Exposed, uncertain, forced to deal with matters beyond his academic competence, even with aspects of life with which teenagers (not to mention their parents) may be considerably more experienced than he is, the teacher naturally seeks advice or help from other teachers at sea in the ROSLA boat.

- ROSLA may be considered as a particular case of a more widespread tendency - to take children beyond the safe confines of the classroom and the tidy world of the pre-digested textbook. The strenuous attempt to promote the immediate environment - personal, social, physical - as the principal learning text has led many teachers, especially those in primary schools, into collaboration and exchange on a scale previously unknown. Emerging from their own schools, they look for a place to meet for library and reprographic services, for expert research help and the like. In a word, for a supporting Teachers' Centre.

- This experiential and local approach has affected the examination system. The traditional exam postulates a standard curriculum, and encourages the presentation of "model" answers. As an alternative, "Mode Three" examining allows teachers in a group of schools to conduct "internal" examinations on a syllabus of their own devising, subject only to the approval of an appointed external Moderator who ensures, by sampling, that the standard is appropriate. "Mode Three" examining often includes, besides conventional written tests, the assessment of oral skills, written work done over a considerable period of time, a "thesis" on a chosen topic. The price of this greater freedom is (as usual) harder work. In any event, teachers whose previous habits suffered the scrutiny only of an anonymous examiner, find that the mere mechanics of "Mode Three" - deciding the outline syllabus, agreeing the means of assessment, carrying out the exams - force them into close discussion and collaboration with colleagues in other schools. A Teachers' Centre provides a convenient venue.

- The researches of Douglas, Halsey, Floud, Young, Bernstein and others have made teachers aware as never before of the impact of the child's familial and social environment on his attitudes to school and to his academic performance. The Ritualised links between school and home (the annual Open Day, the Parent-Teacher Association) - or those between school and community (such as occasional use of school facilities by adults) now seem inadequate to many young teachers, who, especially in depressed urban areas, increasingly talk and behave like social workers. The expected limits of the teacher's knowledge and activity have subtly changed. Teachers from earlier times, accustomed to restrict their concern to the symptoms of maladjustment ("the boy's bone idle" "he doesn't concentrate"), now find themselves drawn into involvement with its profounder causes. In this murky area they seek illumination from experts, and companionship from others like themselves who must somehow adapt to the world of the professional and not-so-professional sociologist and psychologist.

To summarise, then, we can discern a number of changes which make established teachers look beyond the walls of their own schools for aid - changes in syllabus (revision of subject content, integration of subjects), in learning method (practical activity, enquiry methods), in classroom organisation (mixed-ability classes, independent learning, group work), in school organisation (comprehensive schooling, different age-layering of the school system, the prolongation of compulsory schooling) in techniques (new varieties of audio-visual equipment) in relationships (alteration in role expectations between adult and child, involvement with home and community). As a consequence, established teachers find themselves divested of their familiar authority, whether because their stock of knowledge and technique has become out-moded, or because adult-child relationships have been "democratised", or because they must venture beyond well-defined academic responsibilities into a wider social concern. Faced with such problems they seek help from "experts" and, especially, from their colleagues. To their needs the Teachers' Centres constitute the major institutional response.

III. TEACHERS' CENTRES IN ACTION: SOME MODELS

Such is the miscellany of purposes which draw teachers into collaboration that the resulting Teachers' Centres, according to their emphasis, vary greatly. We can now usefully examine some examples - real models, because the construction of ideal models is

all too easy. They are English models (as best fits the writer's limited experience) except where a particular genre has been better developed elsewhere.

At the same time we should look at some of the difficulties afflicting the Centres. Of course, when Centre Wardens meet, the familiar refrain is shortage of space, staff and money. Complaint is sharpened by invidious comparison. Some Centres are squeezed into an unwanted room or two in a school, or find shelter in wooden huts: at the other extreme whole schools made redundant, whether by comprehensive reorganisation or population shifts, have been lavishly re-furnished and equipped as Centres; so have even a few once-stately homes like Stoke d'Abernon. A few Centres must still make do with a voluntary secretary: yet the Centre in Leeds has two wardens and several ancillary staff. There are Centres with ample budgets: others have to solicit a grant for each activity - and may get (to cite an actual case) an allowance of £100 a year and 2 periods a week to permit a teacher to set up and keep open a resource-centre/library in an impoverished "educational priority area".

However, underfunding is endemic in education almost everywhere. Teachers' Centres in England were particularly unfortunate in choosing for their birth a decade during which successive Labour and Conservative governments determined to reduce the rate of growth in educational spending. We need to remember how shortage of money can sour the best intentions and turn every attempted initiative into a burden, but there is little to be gained in scrutinising a matter as obvious as it is important. Instead we shall concentrate on those difficulties which afflict even a wealthy Centre, being inherent in the concept itself.

The single subject Centre

The first Teachers' Groups, some of which then acquired premises and became Centres, were established to support teachers joining the Nuffield Foundation's Primary Mathematics Project. Over 90 areas applied to become "pilot areas"; only 14 could be accepted, and the forming of a local group was made a requirement. In 1968, of 308 Teachers' Centres, no less than 89 were devoted to Primary Maths.

A good example is the Stapleford Mathematics Centre in Cambridge. The Warden argues the importance of a specialist Centre if teachers are to feel that a subject is being dealt with in detail and in depth. The Centre is housed in a converted village hall in the grounds of a primary school. It consists of a well-furnished library, office, kitchen, and a workshop crammed with equipment - calculators, computer layout, planetarium, etc. The problem now is one of saturation in the Stapleford area. There are proposals for housing the Maths

Centre for a year at a time in each of the 5 other Teachers' Centres in the county.

Single subject Centres, we are told, have flourished in Japan. Determined to check a worsening shortage of well-qualified science teachers, Local Education Boards began to establish Science Centres - by 1966 there were 30. Centres followed for Maths, Social Studies and Languages. A third of the costs of running a Centre is met by the Ministry of Education; the rest by the Local Board which also, with help from Parent-Teacher Associations, meets a part of the living costs of teachers attending courses. Some courses last a month, others a few days. They cover subject-content, laboratory techniques, and new methods of teaching. One Centre, serving 78 schools, had 2,800 teachers attending 18 courses during the year, dealing with up to 240 at a time. Another Centre ran a course one day a week for 15 weeks, training groups of 10 teachers at a time who were then expected to lead local seminars.

It appears the Japanese believe that if you have Centres in which you offer in-service training courses, you should make it reasonable for teachers to attend them. This convinces only a minority of English LEAs at present. A recent National Union of Teachers survey showed that 71 per cent of English Centres programmed some sort of activity which required the day release to teachers. In only 34 per cent of these cases, however, did the Authority provide substitute "supply" teachers. For the rest, Headmasters were expected somehow to cover the teacher's absence, presumably by adding to the normal burdens of other teachers. In these circumstances, Wardens tend to confine in-service training to self-contained, occasional lectures, and to after-school hours, week-ends and holidays. Such a pattern, limiting enough for in-service training, cripples local curriculum development which requires regular attendance and work over a long period. As a consequence, curriculum development tends to fall into the hands of a few energetic teachers (the kind who then get promoted and vanish away). "In-groups" form, and this makes a teacher with normal appetites and commitments, already reluctant to give up his spare time, feel the more excluded: yet the zealots are presumably those least in need of information or support. Until the problem of day-release is seriously tackled, Teachers' Centres will have limited influence.

The general purpose Centre

This is now the dominant type in England, both in rural and urban areas, for specialist Centres tend to make less economic use of premises and of the time of permanent staff.

Rural Centres vary greatly in size according to the density of population. Tarporley in Cheshire, purpose-built in 1969, can serve

120 schools and 1,200 teachers within a 15 mile radius; the Chumleigh Centre, at Witheridge in Devon, is within reasonable reach of only 14 schools with a total of fewer than 40 teachers. For such a centre neither a full-time Warden nor permanent premises are thought justifiable. The Headmaster of a primary school acts as secretary, meetings are held in the only secondary school in the group, and exhibitions or equipment must be mounted and dismantled on the spot. All the same, the Centre runs 2 and 3 day in-service training courses, the LEA providing substitute supply teachers to release those who want to attend.

Urban Centres, naturally, reach a larger clientele, in which secondary schools are better represented. A rural Centre may well include only one or two secondary schools in its area, so teachers in them see little advantage in travelling outside their own familiar walls. Urban Centres, like the rural ones, vary greatly in their facilities. At York, for example, the Centre shares modest premises with a College of Education. Yet even here an active Warden, using a regular magazine "Pivot" as his main line of communication, has managed to get well over half the city's 900 teachers to visit the Centre, with an average weekly attendance of 150. At the other extreme, the Leeds Centre must certainly be counted among the movement's aristocrats. It occupies a converted mansion and its large staff is led by two ex-Headmasters. There are libraries, offices, maths and science rooms, a wood and metal workshop, a pottery, photographic rooms, a large room where teachers can make their own teaching materials. There are specialists at hand to help them. In the exhibition rooms, the latest teaching aids and courses are on display, and manufacturers find it worthwhile to make demonstration visits. The Centre provides a maintenance service for the audio-visual aids used in the City's schools. Offering such facilities in a comfortable, elegant setting, the Centre is well used.

An impressive American example of a large multi-purpose urban Teachers' Centre is to be found in Philadelphia. Already, in its fifth year, about 1,500 teachers came to the Centre on "released time" during the day and 5,000 voluntarily in the evenings. Like Leeds, it runs a wide variety of in-service training courses; and there is an even greater emphasis on providing workshop facilities with attendant specialist guidance. But Philadelphia has unique features besides. As well as housing the Teacher Workshops and the advisory headquarters of the city-wide Learning Centres, it now provides:

a) continuous education for high-school mothers, before and during the year after their child's birth;
b) an Infant Care Centre, for 3 week to 3 year olds (including the children of the mothers referred to above);

c) a "Headstart" Unit for 3-4 year olds from impoverished homes;

d) a Kindergarten - grade 5 elementary school.

At first sight such ramifications may seem to have little to do with the main Teachers' Centre functions of in-service training and teacher-participation. But serving teachers, in the front line of the classroom, are intensely (and generally rightly) suspicious of the assorted pundits who from a safe distance, tell them what ought to be done, and design, from a laboratory, impressive machinery for class-room improvement. Each item they propose may be true and tested: it is the totality of the items - practised not as an experiment but daily in the fretful milieu of the school - that gives teachers pause. The same suspicion which teachers extend to the ivory-tower theorists at universities, colleges and pedagogical institutes can also embrace the professional staff at a Centre. With this in mind, one English LEA (Dorset) insists that its Wardens should take on some regular teaching commitments in nearby schools. Elsewhere - for example at Epsom in Surrey - the Teachers' Centre has been built alongside a school so that the Warden is fully a part of the school staff, and the sight and sound of children is a constant reminder of the realities of his task. The Philadelphia staff instead, import their reality. The classes for school-age mothers, the infant care centre, "Headstart" Unit, Kindergarten and elementary school - all are run within normal budgets. They provide a constant reminder of the difficulties of reform and a convincing demonstration to visiting teachers; and give the professional staff the authority of those who practise as well as preach.

Centres concentrating on the production of teaching resources

Local curriculum development is recognised as a function proper to a Teachers' Centre. Additions to or modifications of courses produced by national projects are commonplace; so too are items of local interest. Good examples are the packets of printed materials about the surrounding areas produced by the Portswood Centre in Southampton, at Ely, Exeter, Grantham and this sort of activity multiplies, encouraged sometimes by the gift of small "Torrell" grants from the Schools' Council. However, any more sustained and extensive production of teaching/learning materials requires a level of reprographic and clerical services few Centres offer, and consistent, active leadership of a rare sort.

A few experimental Centres have been established with materials production as a major commitment, and equipped appropriately. One of these is attached to the University of Exeter Institute of Education. Constituent schools can send in requests for materials and the Centre then sets about preparing them. In the process various members of the University teaching staff have been drawn

into giving specialist help; so have students in local Art Colleges, whose detailed projects are accepted as part of the dossier they must present for graduation. Teachers in some schools have used the service extensively, those in others not at all. An attempt was made to stimulate inactive schools by sending a team in a well-equipped travelling van to work on a teacher's requirements on the spot: the van is principally used now for deliveries. The main difficulty though, in any attempt to provide materials "on demand" is that it is extremely wasteful. Hours of research planning - days of careful execution - go into a project which may or may not be used outside the single school that first asked for it. The Centre's experimental period has now ended; if it continues, then, before a project is begun, the Centre intends to check around constituent schools to ensure it will meet a sufficiently general demand. As a preliminary, a detailed study has been made to see what resources are available to schools in a particular county (Dorset) and what teachers believe to be their principal needs.

Another experimental resource-producing Centre was established (in 1969, for a 3-year run) by the Nuffield Foundation "Resources for Learning" Project, the City of Leicester and the County of Leicestershire, at Thurmaston. The Director has published an account of the experience. The aim was to see what materials the teachers in an area might produce if given adequate technical support and professional encouragement. The emphasis on active teacher participation avoided the danger of a wasteful accumulation of materials furnished "on demand" to individual teachers. Certain useful collections - for example of "Creation Myths" and of photographs likely to stimulate original writing by children - were formed from the contributions of many interested teachers. When a more sustained effort was needed, however, requiring research, careful organisation, editing or original writing, then "participation", understandably, shrunk to single enthusiasts or a very small group. Nor was there any guarantee that the best teachers were included: people of quality tend to be busy with the many other claims a school makes on their time. Much the most remarkable piece of work, on the subject of "Mines and mining" in the local region, was produced entirely by one full-time member of the Centre's staff.

Very few teachers at present use Teachers' Centres regularly for substantial curriculum development (in the sense of modifying or creating learning materials). Lack of facilities is certainly one hindrance: the new Ladbroke Centre in London is a recent example of a lavish attempt to ensure that equipment, professional advice, technical assistance - everything that teachers might need to make curriculum materials - should be at hand. But much more serious is ensuring that teachers have enough time. Heroic teachers - usually

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unmarried, one suspects - have proved that curriculum materials can indeed be produced in spare time: but as a general rule, part-time release (as in the "North-West" Project) or full-time secondment (as with the staff at Thurmaston) is an essential preliminary... and is not yet common.

The resource-producing Centres raise in a particularly acute form the spectre of copyright. The present law is such that almost every school staff room has become a smuggler's den. The search for a solution that won't inhibit the schools, will ensure an equitable return to authors, and work without burdensome administration, seems likely - in England as elsewhere - to prove long and contentious. For the moment the amount of copyright material pirated by normally honest men for the benefit of the children they teach, has not reached unmanageable proportions, but the spread of cheap reprographic equipment and of a style of learning which lays emphasis on resources more varied than the textbook - this rightly makes the publishers extremely worried.

And Teachers' Centres pose another threat to publishers. Materials produced by national projects are, of course, heavily subsidised. The selling price includes the normal "authors" royalty which (in England) reverts to the sponsoring body, but this does not fairly represent the heavy development and administrative costs in a project's work. Sponsored courses, then, start with a great advantage over the ordirary commercial textbooks; indeed they often kill off some steady selling item on a publisher's list. But the struggle is made yet more unequal by the Teachers' Centres. These actively disseminate sponsored projects, by publicity, lectures and in-service training. No such support is given (for obvious reasons) to the multitude of commercial alternatives. For the moment the publishers' objections are muted: because they print and distribute project materials, they get a share in the bonanza; and, besides, sponsored projects often produce courses of so high a quality that schools find them visionary or too expensive and stick to familiar commercial textbooks. But the accumulation of sponsored courses, including many less grandiose than some of the early models, combined with a growing Teachers' Centre machinery for their dissemination begins to raise serious concern for the undermining of free enterprise in school materials.

<u>The school as its own "Teachers' Centre"</u>

Teachers in small and isolated schools may well feel the need for Teachers' Centre collaboration, but those in large comprehensives may well find that many of the functions of a Centre can be more easily and naturally met within the walls of the school.

A good example of such a school is Codshall in Staffordshire. This now has its own Resources Centre staffed by a Director of Resources, a secretary and an audio-visual technician, all of them full-time. A room through which teachers pass frequently on their way to their common-room, is equipped with the table space and the tools for designing resources. These, in "mock-up" form, can then be passed to the Centre's staff for detailed finishing and reproduction. Resource-making is, of course, often a matter of collecting and re-arranging published sources (in the course of which, as we have seen, copyright is frequently a casualty); it is important, therefore, to keep ample and well-indexed archives. Codshall had adopted an optical punch-card system originally designed for industrial use and first developed for schools by the Schools' Council General Studies Project. Cross-indexing, storage and retrieval on so elaborate a scale requires at least one full-time librarian. School staffing arrangements don't extend so far, and Codshall has mobilised volunteer parents to fill the gap. Team-teaching is extensively practised at Codshall: this automatically provides a measure of in-service training; but in addition, by time-table manipulations, two teachers are released each week for detailed induction into the use of the Resources Centre. Certain teams so arrange things that individuals can be phased out of teaching for a while to devote themselves to materials production.

We may note several advantages in using the school itself as a base for these two major functions of a Teachers' Centre: in-service training and local curriculum development. First, continuity: instead of occasional lectures or week-end courses, an active school Resources Centre provides a permanent stimulus for curriculum study and a source of technical information, skills and ideas. Moreover, when teachers start making materials they do not need to wait for the time designated by the Centre's Warden or travel to some other place - they can pick up what they're doing at any time in the day. Second, effectiveness: teachers often complain that what is offered at a Centre doesn't quite meet their particular case; work done in a school has, to the contrary, an exact application. Third, coherence: teachers often learn of exciting possibilities at Centres which they then find their own schools cannot adopt, for administrative financial or personal reasons. Some headmasters, indeed, have castigated Teachers' Centres as theatres for unrealistic idealists, centres of disaffection. To the contrary, when something is planned in a school its implementation has already been included. Finally, teacher availability: whereas haphazard release to individual teachers attending Teachers' Centre meetings is an unattractive prospect, a school running its own resources Centre has direct interest in any day release it gives, and can make regular arrangements to provide it.

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But the shortcomings of a school-based Centre are also clear. It may become ingrown and limited (though visits to projects, colleges, and other schools, and intelligent reading can do much to offset this danger). The quality of the materials produced by busy teachers may be low. The teacher may have learnt a great deal in making the materials, and have a keen sense of creative fulfilment - klein aber mein - but to the child it matters little whether the materials were made down the corridor or 200 miles off; either way he must suffer the results, and the less amateur the better. Again, although timetable adjustments suggest that free time for teachers has been "created" for curriculum development, the economic doctrine of "opportunity cost" makes one wonder what other "opportunities" have been sacrificed to allow activity in this direction. And unless this activity is very substantial, the expenditure on premises, equipment and specialist supporting staff, all within a single school, must seem wasteful. Finally, the devolution of Teachers' Centre functions to the school itself means that the school must be large. This is not a route open, for example, to small rural primary schools. All the same, the existence of a few resource-producing schools like Codshall, raises a fundamental question: what part of the process of innovation might best be centred on the school itself (which may then require extra equipment or staff) and what part is best left to some outside agency? We shall return to this later.

The "Missionary" Centre

We have attempted a definition of Teachers' Centres as (a) support agencies in which (b) teachers themselves are active participants. Both requirements, especially "participation", suggest that a Teachers' Centre should have a strong local tie; but conceivably - communications being what they are - a Centre might both support and involve teachers at a distance.

In a sense, almost any project has a "Teachers' Centre" relationship with teachers in its pilot schools. It supports them; they actively participate. But beyond the pilot stage, participation wanes. Lack of local connections may well be one cause; another that the creative stage is past and the materials "perfected" - there's nothing much left to do. Certain projects, however, have given teachers a more central and continuously creative role and have managed to keep them actively involved, even from a distant national centre. It helps, of course, if the project promotes some minority "faith", so that teacher participants have a sense of being not merely active but missionary. Early examples were the Nuffield Maths Project and the Schools Mathematics Project, both of which introduced "new maths" to Britain, one at primary, the

other at secondary level. In the one case, a network of local teacher groups, in the other a group of schools, were directly involved in the creation of the materials used in the schools - not simply in testing those produced by a central team. Similar arrangements have animated, for example, "Maths for the Majority", "General Studies" and the "Schools Technology" Projects. But the most remarkable example of distant teacher involvement is provided by the Freinet movement in France.

For our purposes we need note only in passing the central Freinet tenet that a child is chiefly motivated by what other children do, and by what other children think of what he does. Freinet classes are organised as "co-operatives" in which individual children grow accustomed to presenting items of their work, especially "textes libres", for comment and class contribution. Subsequent work on a "texte libre", or other item, qualifies it for inclusion in a "dossier" presented from time to time to other schools in a correspondence network. However, there is a further level of presentation: teacher committees in each subject select particularly interesting items from the circulating dossiers, and help the originating class co-operative develop them for publication. The co-operative receives a small sum of money, drafts of its work are submitted to chosen schools for criticism, until, finally, the finished draft is sent to Freinet headquarters at Cannes for art-work, design, printing and distribution. Besides these class co-operative booklets, the Freinet press produces various anthologies of children's work, occasional items contributed by invited adults, and a regular journal for teachers and parents. This journal, supplemented by periodic conferences, provides in-service training for those who join the movement. The movement's survival and growth for 40 years (in the face of official neglect and sometimes disapproval in a notoriously centralised educational system) speaks volumes for the effectiveness of the network of mutual support and participation mediated by the central Freinet Co-operative at Cannes. Its catalogue now includes over 1,500 publications - topic booklets, slide-tapes, sets of self-instructional work-cards or semi-programmed "bands", etc. At least 20,000 teachers are known to be using Freinet materials with their classes.

It is important, when contemplating how a system of Teachers' Centres might operate, to remember these examples of Centres that manage to stimulate and support innovation, to provide in-service training and to sustain a high level of teacher participation, <u>without being local</u>. This is not to deny, of course, the value of local connections. Local branches of the central co-operative are a natural development when numbers are large enough. Or a Centre may have a close working relationship in its own area and a more

distant connection elsewhere. Such is the case in a new "missionary" Centre operating in the Avon area around Bristol, which was based on proposals and research by the Nuffield Foundation's "Resources for Learning" Project. Called a "Co-operative for Independent Learning", the Avon Centre has a staff of editor-writers and designers whose function is to produce, in close conjunction with local teachers, basic sets of materials arranged for independent learning by pupils in secondary schools. Participant teachers, in committee, will decide the content of the materials and help with trials and feed-back. Further, they will be encouraged to modify the materials as they wish, for their own use, and - with other interested adults - to contribute to the common pool of materials. Beyond this use and participation in the "home" area, however, the Co-operative expects to "export" its materials to other interested areas where, similarly, the local teachers can modify or add to them as suits them best. Such two-tier arrangements are a natural way for a Centre devoted to some specialism or "mission" to retain close working connections with its own locality and yet to respond to a wider demand.

The Out-service Centre

Some Centres are already equipped to send out their missionaries into the field. For example, the Philadelphia Centre advertises in the press for schools that would like a visit. Small teams then run a "laboratory" for interested teachers at the school; or they may help teachers to construct useful teaching aids on the spot - for example "a bird-watching station" which, it seems, provided a topic-focus for children's work for several weeks.

This out-service activity assumes a more formal shape in some Teachers' Centres serving a whole (American) county. The Oakland County Schools Centre in Michigan deploys its staff of 130 in a wide variety of support activities. Many of these involve the dispatch of materials or technical advice, but local "missions" are included. For example, a team was sent to an area to devise a better reading scheme, which involved frequent visits and some team members living in the locality over a considerable period.

The Director of the Centre speaks of occasional "aggressive consultancy". On the basis of past services, experts from the Centre feel able to take the initiative in encouraging a Superintendent of Schools or a Director of Instruction to consider changes that seem advisable. The Co-operative Educational Services Centre in Oswego County, New York State, carries out similar functions. Rural schools can apply for help of various kinds - for example, with special reading programmes, individualised work programmes (computer controlled) boxed collections of teaching materials,

or with more extensive school-based curriculum renovation and in-service training. "Outside" consultancy and services characterise this Centre, rather than meetings and group-work on the Centre's own premises. As an additional benefit to surrounding schools, the Oswego County co-operative runs a centre for children with severe learning handicaps.

This is a far cry from English Teachers' Centres: but when the physical focus of activity is moved to a school or group of schools who have asked for help, the principal Teacher Centre functions of in-service training and active participation by teachers would seem to be richly fulfilled.

The Teacher-training Centre

We have seen that a major preoccupation in Teachers' Centres is in-service training. There are obvious advantages in attaching a Centre to a College of Education, or University Department of Education, professionally concerned and equipped to deal with the content and methodology of all major school subjects. In practice, very few Colleges or Departments have found room for a Teachers' Centre. One of these is the Rachel McMillan College for mature students, at Southwark in London. When the College day ends at 3.30, its facilities become available to teachers in the neighbourhood, and the Warden has begun to find ways in which College and schools might collaborate. The Centre has acted, for example, as a base for teachers during their first, probationary year in a school - a time when, presumably, theoretical information and shared experience might make particular sense, and a time when, notoriously, many young teachers are left to sink or swim. The James Committee recommended - and the Government in a White Paper has accepted - that this probationary period should be given more serious content. Student teachers are to be freed for the equivalent of one day a week, and in total to undertake not more than three-quarters of a normal teaching load, so that they can attend courses and pursue their studies under arrangements made at specially constituted "professional centres". A Teachers' Centre integrated into a College of Education would provide an admirable base for enlargement into the sort of "professional centre" envisaged, focusing on in-service training and also on the support, continued training, and supervision of probationary teachers.

An actual example of such "professional centres" is provided by Syracuse University in the United States. Its "Teacher Education Centres" are designed to serve a cluster of two or three elementary schools or one or two junior high schools with their related senior high schools. A Centre provides a meeting ground for the student-teachers working in the schools and their supervisory teachers.

Courses are run for supervisory teachers which enable them to qualify as associates in teacher education. The Director of the Centre works out individual training programmes with students and their supervisory teachers; a resource consultant keeps them in touch with the university. Comparison of student-teachers assigned to the Centres and those without this form of support, whether in their attitudes to teaching, or their degree of participation in school activities are reported to demonstrate clearly the value of the Centres.

At first sight this sort of joint university (or college) and school centre seems to have little to do with the functions of a Teachers' Centre as previously described. Its purpose is the training of students rather than improvement in the schools. Potentially, however, an extension of the Teachers' Centre to take part in the students' training could usefully reflect back into the school. In their shared concern for the training of the student, the supervisory school-teacher is brought into contact with the supervisory university lecturer. The fact that he has a training role gives a teacher a purpose in attending courses, etc. The properly organised use of student-teacher time in a school could provide that regular day-time release for serving teachers without which in-service training gets distorted into a hole-and-corner affair. And, within the limits of their skills and experience, student-teachers could prepare curriculum materials for classroom use, and help children learning from them. In a number of ways, then, the in-service training, curriculum development and resource production aspects of a Teachers' Centre could be greatly helped by the inclusion of student-teachers.

In return, their training would have dimensions it at present lacks. The spread of individual and group methods of learning offers opportunities for teacher training which class teaching prohibited. For the essence of class teaching is that one source of instruction at a time is used by the whole class - usually the teacher's words. The teacher flies solo: the teacher-in-training is a passenger until, in his turn, he too flies solo. But in a resource-based method of learning there are many different sources of information in use within the class at any one time. These have to be made and managed; and while the teacher is helping one group, a student under his supervision can help another. It offers the student a less pretentious role when he starts to teach, and an experience likely to prove less traumatic. Above all, it places teacher and student in a functional inter-relationship. Both might then usefully be linked, via the local Teachers' Centre, with university and specialist support. The prospect opens up of student-teachers being of everyday value in the running of a school as student-doctors are in running of a hospital. The unconvincing and ineffectual nature of teacher-training might then be modified, and the pressure on the teacher - particularly the teacher who wants to make changes - might be eased.

IV. TEACHERS' CENTRES AND CHANGE IN EDUCATION

Although Teachers' Centres can serve a variety of useful functions, a major reason for official interest in them is their role in initiating and supporting change in the schools.

It is commonplace to talk about the rate of change in education. Sir Ronald Gould, when Secretary of the National Union of Teachers, once remarked: "No teacher can afford to spend a working life-time relying on the capital he acquired in the years of initial training". Perhaps the sheer volume of new syllabuses and techniques would justify setting up special institutions where teachers could attend courses, up-dating their knowledge of the content and skills of their subject. The Japanese Science Centres seem to be of this kind. Clearly, they have great merit; but the word used in connection with English Teachers' Centres is not teacher "attendance" but teacher "participation" - even if the difference in practice may not always be very great.

This shift in emphasis reflects not so much the rate of change as its direction, for almost all curriculum development in the last 15 years has emphasized a "heuristic" approach, involving the greater activity of children. This has curious side-effects. In the first place, it blurs the distinction between in-service training and local curriculum development. One LEA, in establishing Teachers' Centres, said they could indulge in curriculum development but must not dabble in in-service training - the preserve of other organisations. One is reminded of the American nursery rhyme:

> "Mother dear may I go and swim?"
> "Yes, my darling daughter
> Hang your clothes on a hickory limb,
> And don't go near the water."

The fact is that if children are more often to learn by their own activity than from the words of a teacher, they need a welter of appropriately designed and arranged materials, and many of these are of a kind which the existing structure of educational publishing and manufacturing industry cannot market at a price schools can afford. Thus, typically, the Co-ordinator of the Kamloops Learning Resources Centre, British Columbia writes: "with the advent of continuous progress, the non-graded school, the open area philosophy or whatever you want to call it, we found the implications for resources was staggering". With a "child-centred" approach, it is no longer simply a matter of the teacher learning the new words he should say or attitudes he should adopt in a class, but equally of designing and making the materials individual children and groups will need. In other words, in-service training slips into curriculum

development and that slips over into resource-making. The teachers' role is not just attendance at lectures or workshops, but a very practical sort of participation.

Here then is one obvious reason why teacher participation becomes imperative; another is more central and obscure. It is not too fanciful to describe the present trends as marking the extension of democracy to children. Their opinions, their consciously-expressed needs, their willing collaboration, are now promoted to a new prominence in their education. Now, as we all know from the political sphere, democratic practice is less a matter of forms of law then of the spirit in which they are applied. Similarly, it is the sad experience of curriculum developers that their courses, designed to support a heuristic and active approach, have been turned by willing but uncomprehending teachers into the latest textbooks. The problem is not to change what the children learn but the way they learn, and that involves a change in the traditional relationship between the teacher, the child and the object of learning, the "I-thou-it" of the classroom. Of course, certain forms of behaviour can usefully be ordered from above but only those of a relatively trivial kind; anything more positive and fundamental has to be induced - that is, understood, experienced, internalised by the recipient.

We need clearly to distinguish between those innovations that focus on revising curriculum content, and those that may be non-commital, even conservative, about content but require a substantial change in the methods of learning, and consequently in classroom relationships. Since these depend upon teachers adopting new attitudes and behaving in an unaccustomed manner, they imply not mere acceptance but conversion. Effective conversion follows from deep personal experience rather than upon mere words. Thus, teachers are not likely to behave in the spirit of co-operative and creative child-centred learning with their classes unless they have first themselves experienced participatory and teacher-centred training - and how more naturally than by belonging to a group which in some degree creates curriculum materials and other resources for classroom use. Thus a workshop style of curriculum development becomes the active, experiental form of in-service training in preparation for a workshop style of class learning.

Again, the willing participation of the teacher is essential because he holds a position in relation to change unparalleled by workers in other large enterprises. There is, of course, a strong bureaucratic and hierarchic machinery that controls his career and daily regimen but, except in totalitarian countries, this does not penetrate the minutiae of the classroom. The teacher has colleagues, but his daily activity is autonomous; in a distant, generalised sense he is, of course, part of a team, but in the classroom he is

not an integral part of some group whose members are locked together by their functional inter-dependency. In other professions, individual independence is tempered by the opinion of the clients; in the teacher's case it is not clear who are his clients. In so far as the local authority and adults in the community pay his salary, they may be seen as such, but their control is weakened by ignorance of what is really happening behind the classroom door, while the children he teaches are allowed neither to shop around elsewhere, or quit, nor are their opinions given weight. In certain trades, individual conservatism is limited by the measured benefits of technical change; in teaching, so disputed are the aims, so obscure and long-term the effects of particular actions, that a technological approach is seldom convincing. The "established", traditional technology of education comes to have all the ambiguous force of a set of proverbs. In sum, the various levers that bring about change in other human activities operate with very little force in the school. Instead, change depends on the teacher perceiving that certain shifts in the surrounding culture necessitate parallel or compensatory alteration in the school - on his conviction that change is needed and his participation in effecting it. Although, in recent years, assembled subject experts and educational technologists seemed likely to turn education from a craft into an industry, in England at least, the teachers' main reaction has been an obstinate reassertion of the primacy of first-hand experience, and a renewal insistence of teacher leadership.

Although, then, for the reasons we have traced, both the authorities (under whose aegis new curriculum courses or new methods are introduced) and the teachers agree on the necessity of teacher participation, when it comes to establishing Teachers' Centres as a focus for it, the authorities are likely to emphasize the Centres' missionary function, the teachers the social and pastoral. The tension shows in the uncertain position of the Centre Warden. Here, as illustration, is the situation in three different Local Education Authority areas.

Area A

The Teachers' Centre Wardens in this LEA work autonomously (though every penny they spend, even the petty cash, is audited centrally). The Chief Education Officer, his Advisers and the Wardens meet together formally once a year. (It is this Authority which forbids the Teachers' Centres meddling with in-service training).

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Area B

In this Authority there are 12 Teachers' Centres. A senior Adviser is charged with looking after them and ensuring overall co-operation between them (for example, by a consolidated information bulletin listing their programmes).

Area C

Here the Wardens are fully integrated into the LEA Advisory structure, each having the rank of Local Assistant Adviser (or "Teacher-Adviser"). They meet together every Monday to ensure collaboration among themselves and with other Advisers with whose activities there might be an overlap.

We have here an ascending order of integration between the Wardens of Teachers' Centres and the Advisers in the Local Authority. These Advisers - still sometimes called Inspectors - have the prime responsibility for the quality of teaching in the schools. They visit the schools a great deal, try to ensure that teachers have the resources and support they need, organise in-service training courses .... in short, they have many of the same concerns for a larger area that Wardens have more locally. The argument for the closest integration would seem incontrovertible.

But is it? Teachers' Centres are supposed to encourage teacher participation. It is not enough that they should be run <u>for</u> the teachers; shouldn't they also be run <u>by</u> the teachers? Shouldn't the Warden be "one of Us rather than one of Them"?/ A Local Authority (which, after all, provides the premises and pays all the bills) may pre-empt debate by contractual arrangements, or by an incorporation of the Wardens into an administrative promotion structure outside that of the schools. In so doing, however, it will risk cutting short that grass-roots activity which might flourish in less authoritarian circumstances. Teachers come to feel that the Centre activities are directed from above, that the Wardens, anxious to please their seniors in the advisory service, guide teachers' demands from the start into "acceptable" channels. In an authoritarian Centre, the Chairman of the Management Committee is likely to be the Warden; but elsewhere teachers elect one of their number as Chairman and require the Warden to report to him. Such is the feeling of teachers in some places that they prefer not to have a full-time Warden, settling for the more limited but "democratic" activity possible if one of their number acts as part-time Warden, or, as in one London Centre, if panels in various subjects conduct their own affairs led by elected Chairmen who share a secretary.

The role of the Warden gets entangled in another familiar issue in English education, namely, the status of in-service training.

In some countries, regular and compulsory attendance at in-service training courses is written into a teacher's contract, or (as recently in Sweden during the conversion to "new Maths") teachers may be told that their continued right to teach will depend on taking a course leading to an official certificate. Elsewhere, teachers may be induced to attend courses by extra payments, or by the offer of "credits" towards some higher qualification. In England, teacher organisations have rejected all such persuasions, insisting on the purest voluntarism. Even so, some argue, may not official approval shine upon those who attend courses - to their benefit when promotion is in the air? With such corruption in mind, the "democrats" urge that a Warden must not be an Authority man. Through him word could get back to headquarters: teachers might then attend meetings from calculation rather than interest, and the free and open discussion of mistakes among colleagues be inhibited. Pinned between such counter-persuasions it is no wonder that the Wardens get into contortions in trying to define their job. One writes that a Warden's success should be measured "by the extent to which he can play a recessive role while enabling teachers to see the consequences of the practices they are following". Another declares "we are not trying to change people but to help people change themselves; and to provide leadership to enable people to achieve what they want to achieve". It is all very difficult.

These arguments on constitutional issues highlight differing views of the role of the Teachers' Centres. For it is particularly tempting, in an age of increasing size and organisation, to view them as places where the "little man" - John Citizen, the ordinary teacher - gathers with his fellows to resist the pressure of the expert, the bureaucrat, the educational politician. But will the Centres prove to be forts against invasion, or - especially in countries with less strongly developed traditions of non-conformity and decentralisation - will they become outposts from which the Authorities can seduce and subdue the locality? Perhaps the contrast is unreal. When, in the Centres, teachers are more fully informed of an innovation, able to contribute, modify, and implement it, they are likely to internalise the change and so still to feel free men while adopting it - or theoretically, in rejecting it. In practice, however, those uninterested in, or opposed to, innovation are likely to shun any Centre, preferring the quiet security of their own classrooms. There is every prospect that even this liberty to neglect will soon be invaded. Time free for in-service training easily slips into compulsory attendance at in-service courses (at which, it has been gloomily predicted, teachers will have "to log their hours like airline pilots"). Materials produced by official projects will be

the likely staple of such in-service courses. Similarly, every time a Centre assumes some new function in support of local teachers it requires additional staff, space and resources and becomes increasingly subject to official finance. In sum, Teachers' Centres are not in the least likely to facilitate resistance to pressure for change; rather they may replace the relatively superficial change induced by central, inflexible command by a more profound process of change through local, organic adoption. All of which explains why central authorities, no less than local activists find the Centres acceptable.

V. A SYSTEM OF TEACHERS' CENTRES

Let us now suppose that we want to make the maximum use of Teachers' Centres to bring about agreed change - what pattern offers the best prospects? We have seen that in England Centres have sprung up in a sturdy disorder, but elsewhere the ground is still unencumbered either by the fine wild blooms or the fine weeds that have resulted. Even to speculate on some deliberate policy for planting Teachers' Centres, however, requires an intimate knowledge of the surrounding conditions, at a particular time, in a particular region. I have such knowledge of nowhere but England. I shall therefore suppose (it strains the imagination) that an organised overall effort to establish Centres was being made in England, and hope that some of the considerations relevant there will seem relevant elsewhere.

In my view, we would need to consider the provision of Centres at four different levels:

1. Central (whether national or regional).
2. Intermediate.
3. Local.
4. School.

I shall examine these briefly in turn.

The case for central institutions for innovation has been amply argued and demonstrated elsewhere and need not detain us. I have in mind the Schools' Council for England and Wales, Skoloverstyrelsen in Sweden, Forseksradet in Norway. They are not, of course, Teachers' Centres in the sense we have earlier used the term. Teachers do indeed participate, in that they are employed there, but they become "experts" or "Project members". It is, of course, participation by teachers who still keep a commitment to classroom teaching that the Teachers' Centres try to promote.

Such participation can be stimulated by institutions at either or both of two levels: the one "local", the other "intermediate".

The distinction intended here is geographical. A local Centre is one which a sufficient number of teachers can attend without unreasonable exertion: an intermediate Centre is one which has a more scattered constituency, so that physical attendance cannot be the prime mode of communication with and between its members. By this definition, local Centres tend to be in densely populated areas and/or to deal with primary schools. For the primary teachers are generalists: all subjects in the curriculum and all aspects of the child's life concern them; almost any meeting, therefore, can hope to attract them in reasonable number. The case is quite different with secondary teachers. To gather a sufficient audience for a talk about reform of the Advanced Level Physics syllabus, or to compose a working party for development of curriculum materials in French, will not be easy outside a city.

The great majority of Teachers' Centres in England are local and have become general purpose Centres. In my view, even for Primary School support (and the absence of secondary school teachers is a constant complaint) most of the present Centres are ineffectual. Being so local, they tend to be small, staffed usually by a single Warden sometimes helped by one or two clerical and technical staff. In consequence, they become venues for lectures, discussions, social gatherings and for very occasional pieces of curriculum development or resource production by energetic individuals or very small groups. An exception to this general rule is the specialist Centre, like the Stapleford Mathematics Centre, where a great deal of active material making is commonplace: but the Centre's resources - the premises, the Warden's time, the equipment - are there devoted to a single subject, for which reason such Centres are now thought uneconomic. If the Warden in the normal general-purpose Centre tries to initiate action other than talk, he finds his resources so disproportionate to the needs that he is forced to depend on the vagaries of spare-time, voluntary activity by teachers. Then, not much gets done, things get started and soon die, disillusion sets in, and all the hardy enthusiasts drift away. The Centre continues with a diet of meetings, lectures and the like.

But if we contemplate Centres able to engage in activities other than talk, what sort of staffing and premises shall we need? Suppose the Centre were to support selective curriculum development - which means collecting, editing, writing and designing suitable materials, then producing and distributing them - we shall presumably need at the least one full-time specialist in each subject area. Around this hub, teacher contribution may usefully revolve and steady, encouraging progress result. We shall need someone skilled in artwork and photography, a reprographic specialist, secretarial,

clerical and dispatch staff. Someone must focus on liaison with participant schools. For the curriculum development function alone, then, we shall require, say a minimum of a dozen people. We should want to include an advisory service. Ideally this should have in it some members who can be assigned to "missionary" activity, giving short-term stimulus and help within the schools. It would certainly be most useful if the Centre could run a recording service for TV and radio broadcasts (as is well established in Sweden), and admirable if it could be an audio-visual aids centre (as at Leeds)..... and so on. The point is that any active Centre, one which aims at sustained curriculum development/resource production, requires staff and premises of a wholly different order from that of the local Centres in England.

An "intermediate" Centre of the kind described must have a larger constituency than most of the present Centres in order to justify its costs. A city and the surrounding suburban areas, or a rural county - the sort of regions recently created by the Local Government Reorganisation Act - these would seem about right. Distance would not preclude other conventional Teacher Centre activities, such as the dissemination of project information and in-service training courses, though it might involve more visiting of schools: and certainly in a scattered rural region, local sub-Centres would make a useful addition.

Won't teacher participation be reduced if Teachers' Centres are not small and local? But there is an even more "local" venue than the Centre - the school itself. Given basic duplicating equipment, teachers can make modifications and additions to received materials. Selected additions and original items can then be worked on further by the contributors, with a view to inclusion in the schedule of materials put out from the Centre. This is the system used so effectively by the Freinet movement and various curriculum projects (for these, except for their impermanence, act like intermediate Centres, dealing at a distance with a network of volunteer and interested teachers). In short, if we are right in thinking that the most important sort of participation is participation in that closely knit sequence of in-service training/curriculum development/resource making, then a weak Centre that is local is likely to be less effective than a strong Centre even if it is further off.

A strong Centre is likely also to give more worthwhile support to a teacher who, at first, finds himself working at odds with his colleagues. Changes at the superficial level of subject content are seldom controversial; but the attempt to move towards an increasingly heuristic, individualised, child-centred approach is a very different matter. An initiating teacher's urgent need in such

circumstances is for suitable materials, expert advice, a sense of common purpose with teachers elsewhere. A strong Centre, even if less local, is best able to provide such support.

For the present purposes of Teachers' Centres, then, the numerous small local Centres that have sprung up lack, in my view, the depth of resources needed for future growth. I believe a number will wither away and others become little more than gathering places, chiefly for primary school teachers. Fewer but stronger Centres - staffed and equipped to sustain curriculum development, to provide consultancy services to individual schools, to arrange substantial in-service training whether at the Centre or at some temporary school base - such are more likely to meet the extensive needs of those teachers who choose to set about changing the curriculum content, and - more difficult - the style of learning so deeply embedded in the traditional routines of their classrooms.

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Annex A

SUMMARY OF THE PROGRAMME OFFERED JANUARY-MARCH, 1972, AT THE TEACHERS' CENTRE IN A SMALL COUNTRY TOWN

(Extracted from Teachers' Centres: The British Model - a lecture by Audrey Griggs)

1. French, twice weekly at 4.00 p.m.
2. Raising of the School Leaving Age: weekly 5.00 p.m. - 9.00 p.m. (continuation of a course held at Sussex University the previous term).
3. Home Economics Curriculum Development Group - 1 meeting, 5.00 p.m. - 9.00 p.m.
4. Seminars for Probationary Teachers - 3 meetings, Wednesdays 4.30 p.m.
5. Pre-School Play Group Tutors - weekly 10.00 - 3.00 p.m.
6. Team Teaching in the Primary School - 2 meetings, 4.30 p.m.
7. The Middle Years of Schooling, Discussion Groups - 3 meetings, 7.00 p.m. - 9.00 p.m.
8. Raising of the School Leaving Age and After, BBC Discussion programmes - 3 meetings, 6.15 p.m.
9. School Assemblies - 2 meetings, 4.45 p.m. - 6.15 p.m.
10. Children's Literature - weekly, 7.00 p.m. - 9.00 p.m.
11. Science in the Primary School - 3 meetings, 4.15 p.m.
12. Teachers of English Group - 2 meetings, 7.00 p.m. - 9.00 p.m.
13. Drama in Education, all ages - 1 meeting, 4.30 p.m.
14. Annual General Meeting of the Teachers' Centre - 7.00 p.m.
15. Infant Education, reception classes - 1 meeting, 4.15 p.m.
16. Primary Fieldwork - 1 meeting, 4.15 p.m.
17. National Bureau for Co-operation in Child Care - weekly, 7.00 p.m. - 9.00 p.m.

Annex B

TEACHERS' CENTRES: CHECK-LIST OF ACTIVITIES

"Teachers' Centres" need to be seen as the local aspect of a country's whole system for keeping schools "up-to-date", in particular by re-training teachers, and by supporting them, materially and spiritually, in their efforts at improvement.

The total system of support for the teacher, even if we confine ourselves to his relationship to the child, is likely to include many elements. These will vary according to a country's resources, its traditions, its view of the role of the school, and may well include (under one name or the other) central government Inspectors and local government "Advisers": Teachers' unions, national Associations of Teachers of particular subjects and local subject "panels"; curriculum Project teams sponsored by some national "Board" or "Council" and local Teachers' Centres; the staff of University education departments, Colleges of Education and "Ecoles Normales"; commercial services working under contract; textbook publishers, educational broadcasters and journalists...not to mention a host of remedial social welfare agencies designed to help individual children in difficulties or groups of children at risk.

If one focuses on Teachers' Centres as a distinct genre, it is easy to misinterpret their role, for each exemplar ought to be fitted into the particular context in which it works. As part of a total system - and usually a late arrival on the scene - what a Teachers' Centre does (available resources apart) is largely a function of what, among the teachers' current priorities, other parts of the support-system don't do, or do badly, or at too remote a level.

The Teachers' Centres, then, as a sort of residuary legatee, may inherit quite different activities in one place and another. Certainly, all of the activities shown below cannot be found in any one Centre, although each can be found in some Centre.

A. ACTIVITIES DESIGNED TO PROMOTE IN-SERVICE EDUCATION AMONG TEACHERS

1. Encouraging conviviality among teachers.

- in the course of which, naturally, a good deal of "professional" exchange occurs as well.

2. Arranging formal meetings and discussions among teachers.

3. Organising exhibitions and demonstrations.

4. Encouraging exchange of work between schools.
   - in rare cases such exchange of "dossiers" has become a regular means of cross-fertilisation of ideas between teachers, and children.

5. Arranging lectures.

6. Holding local in-service training courses.

7. Disseminating information about, and co-ordinating or supporting local participation in, national curriculum projects (including "feedback").
   - often this extends to active local curriculum development work, and as such is dealt with more precisely in section B of this check-list.

8. Maintaining a library for teachers.
   - including "pedagogic", research, reference and textbook libraries, either "fixed" and/or linked with travelling or postal delivery arrangements.

9. Organising "documentation" services.
   - for example, printed bibliographies, reviews, digests, extracts and selected articles on particular topics.

10. Supporting research by teachers.
    - including personal study, research into local problems, participation in national research studies, "auto-research" at classroom level.

11. Editing a local Teachers' Journal.
    - which, besides local information and opinions, may include reprints of articles from "national" sources.

12. Arranging expert advice.
    - a local teacher with a problem is put in touch with an "expert" - whether another local teacher or someone from further afield.

13. Providing sustained consultancy to a local school system or to an individual school.
    - a few Centres have sufficient staff to provide direct and sustained consultancy, sometimes on a formal contract basis.

14. Supervising and supporting training, in which student-teachers and established teachers are jointly involved.

- a student is assigned to do his "practical" with a teacher; both then receive support and training from professional Centre staff.

15. Supporting continued in-service training of probationary teachers.

16. Supporting in-service training based on correspondence and other media.

B. ACTIVITIES PROMOTING LOCAL CURRICULUM DEVELOPMENT
(which is also a powerful instrument of in-service training)

17. Arranging contribution by local groups to national curriculum projects.

18. Arranging the adaptation to local circumstances of national curriculum materials.

19. Organising participation in co-operative projects.
- most national curriculum projects have a central team writing all, or the bulk, of the materials (though local groups or individuals may make small contributions to the materials, or adapt them to suit their own circumstances). Sometimes, however, the project is a co-operative one and virtually all the materials are contributed by local curriculum development groups.

20. Organising the writing and production of locally-initiated, locally-used curriculum materials.

21. Maintaining a local resources-bank.
- although most local learning materials are designed to meet particular, specified curriculum needs, sometimes an open "bank" of materials is maintained, consisting of numerous items considered likely to be of value to some teacher, sometime, in some unspecified context.

22. Promoting special local examining for local schools.

23. Evaluating innovations for particular schools or for local school systems.

C. TECHNICAL SUPPORT SERVICES FOR SCHOOLS
(Often, but not necessarily, used to support local curriculum development)

24. Running workshops for the use of teachers.

- such workshops may be "neutral" or may become "teacher-workshops" deliberately aimed at informal in-service training in some new development by means of practical sessions in making appropriate curriculum materials.

25. Acting as a reprographic centre.

26. Giving production assistance.
    - for example, with typing, graphic design, and illustration.

27. Assisting teachers to choose and effectively to use audio-visual equipment.

28. Maintaining a rotating loan service of equipment or materials.

29. Maintaining a stock of selected learning materials for sale.

30. Servicing school equipment, or arranging for other agents to do the servicing.
    - generally, but not necessarily, in relation to audio-visual equipment.

31. Acting as a recording centre.
    - depending on the country's copyright arrangements, some Centres record TV and radio broadcasts and make copies on demand for teachers.

D. SERVICES GIVEN TO THE CHILD, THE HOME, THE COMMUNITY, TO SUPPORT THE WORK OF THE TEACHER

As the teacher becomes increasingly concerned with the social and family factors affecting a child's progress, so support-services needed by the teacher extend from the school itself out into the community. In many countries, the services listed below are the responsibility of social-welfare agencies; in others they are shared between the welfare and educational services - with a consequent muddle about who ought to do what. In most countries such services are concentrated at a regional level; in one or two, local Teachers' Centres, working in close conjunction with the schools, have become the agent.

32. Encouraging parent-school co-operation.
    - ritual parent-school contacts are sometimes reinforced by active parent involvement in the child's learning (especially for young children, and deprived groups).

33. Helping social groups "at risk".
    - for example, migrant workers, immigrants, gypsies.

34. Helping children unable to attend school.

35. Testing children.

36. Providing "guidance" services.
    - for children with learning and behavioural problems.

37. Providing remedial services.
    - for children at school, and/or for "early leavers" and disadvantaged adults.

38. Supporting school-community voluntary service.

E. SELECTED EXAMPLES

For the most part the Teachers' Centre activities listed above are commonplace; a few are rare or have been developed in some unusual fashion in a particular place. These only (within the limits of the writer's knowledge) have been listed in this section.

The numbering of items relates the "examples" to the appropriate "activities" in the text above.

Item 4. "Dossiers" of work presented by a class in one school to a class in another - this sort of exchange is highly organised and central to the Freinet co-operative system, chiefly in France and the francophone countries.

Item 6. Particularly well-developed in Japan, with its network of special centres for science and for certain other disciplines.

Item 9. Such "documentation" services were the origin of - and remain a particularly strong element in - the French "Centres de Recherche et de Documentation Pedagogique", about 60 of which are now established throughout France.

Item 10. The initiation and support of research has figured strongly in the programmes of most Regional Educational Laboratories in the United States.

Item 13. Sustained consultancy is expensive and therefore rare. Oakland County School Center, Michigan and Oswego County Co-operative Educational Services Center, N.Y. offer such consultancy, on contract, usually to a group of schools in a local school system.

Item 14. At present rare. Syracuse University's "Teacher Education Centers" appear to work to this model.

Item 15. Arising from the James Committee Report, an expanded Teachers' Centre in Liverpool (as in two or three other places) now acts, experimentally, to support the continued studies of probationer-teachers.

Item 16. No permanent example - yet. It is an obvious development, however, when "Open University" type courses for teachers coincide with the existence in some countries of a network of Teachers' Centres. The extensive involvement of Teachers' Centres in support of the BBC-TV in-service course about ROSLA ("Raising the school-leaving age") shows what might be done.

Item 19. The Freinet system depends upon materials produced by teachers and their classes being made available to schools in the whole "co-operative". More recently, the "Maths for the Majority Project" and "Project Technology" in Britain have been of this fully co-operative nature.

Item 21. The Dudley Resources Centre, Northumberland, United Kingdom is a well-established resources bank.

Item 22. Widespread now in Britain, since "Mode 3 examining" - locally set and marked, centrally moderated - has become the major method used in the "Certificate of Secondary Education"..

Item 23. Certain Centres in the United States help schools to evaluate new programmes, particularly in connection with the spread of "Open Classroom" methods. The Educational Testing Service in Boston conducts evaluations on request, and seems to have developed some of the advisory and support functions more often associated with a "Centre".

Item 24. The earliest Teachers' Centres in Britain promoted workshop style in-service training in support of the Nuffield Foundation's Primary Mathematics" project. Most among the recent crop of Teachers' Centres in the United States are of a workshop kind, often promoting "open classroom" primary school methods.

Item 26. For example, the Freinet Centre at Cannes where teachers' materials are illustrated and styled for publication. The Inner London Education Authority's "Media Resources Centre" and the Resources Centre for the Isle of Ely, in the United Kingdom, provide other notable examples.

Item 29. Science and Technology Centres (arising from Project Technology in the United Kingdom) collect and refurbish technical equipment - often items cast off by industry - and sell it cheaply to the schools. The Freinet Co-operative, from its headquarters at Cannes, markets its specially-designed printing equipment for children's use and sells some other learning materials as well, inexpensively.

Item 30. For example, the Leeds Teachers' Centre, United Kingdom.

Item 31. Teachers' Resource Centres throughout Sweden regularly record appropriate television and radio programmes and provide teachers with copyright-free copies on demand.

Item 32. The "Education Priority Area" Centre in Liverpool has been notably active in promoting parent-school involvement.

Item 33. For example, the Pedagogic Centre at the Hague, Netherlands, specifically works on problems arising among immigrant families.

Item 34. For example, the Teachers' Center in Philadelphia, United States, runs classes for school-age mothers, before and after the child's birth, when the mother cannot attend school.

Item 35. The Pedagogic Centres in the Netherlands maintain psychologists who conduct diagnostic tests, as needed, for children with learning difficulties.

Item 38. School-based voluntary service to the community is particularly strong in the United Kingdom. Sometimes officials maintained by charitable organisations or by the Local Authority help co-ordinate the efforts of participant schools in a town; sometimes a Teachers' Centre is the focal point for the teachers involved.

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Part Four

THE TEACHER'S ROLE IN CURRICULUM DEVELOPMENT: A FRENCH VIEW

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SUMMARY

The key words in the educational vocabulary are ambiguous. We cannot understand ourselves or others unless the meaning of these key words is specified either arbitrarily or by explicit agreement, with reference to an ideology recognised as such or to a declared system of values.

The logic of his quest (or his experiments) leads the researcher:

- either to question the policy-maker as to the aims of the educational system whose definition is the task of the policy-maker,
- or to put himself, deliberately or unconsciously, in the place of the policy-maker.

Educational innovation cannot therefore be confined to its technical aspects. It cannot do without ideological premises, which, for the sake of scientific integrity and democratic honesty, should be explicit.

In an Annex, we suggest by way of methodological illustration that the ideological foundation of the French educational system and its renovation should be the training of citizens for a confrontation with the future.

INTRODUCTION

The views expressed in the present paper are based on the first article in this book, "Teachers as innovators - The types of environment most likely to favour the active and effective participation of teachers in educational innovation". My aim is not to add to Mr. Bolam's study but simply to throw further light on the subject:

- by discussing English, French and "franglais" terminology,
- by referring to recent French experiences of educational innovation based on experiment or consultation.

Terminology

In the passage from English to French, exact translations of educational terms and concepts are very rarely possible. It is only because of agreement among the initiated that "élaboration des programmes d'études" is considered an approximate equivalent to "educational innovation". And to the mind of a French teacher, this

expression certainly does not cover the same concept as "curriculum development" does for a British or American colleague.

These translation difficulties have their advantages. In a field where terms fluctuate, thought is changeable and reality uncertain; such difficulties oblige us to define the problems we wish to examine clearly enough to be able not only to discuss them at international level without too much misunderstanding but also to state them in a language which is accessible to all in the national context (in particular, without having to refer to a foreign equivalent). That is an essential prerequisite in an enterprise such as this which demands a broad consensus from a wide variety of partners.

Recent French experience

This experience covers on the one hand activities carried out since 1967, under the direction of Louis Legrand, by the research department of the "Institut national de recherche et de documentation pédagogiques" (INRDP) (National Institute for Educational Research and Documentation) and, on the other, the many consultations held between the summer of 1968 and July 1974, ranging from the Educational Renovation Commissions in 1968-69 to the working parties set up by the Minister of Education, Mr. R. Haby, and including the National Symposium on Education in November 1973.

Much can be learnt from both series of activities. They corroborate Mr. Bolam's analysis, especially as regards identification of the obstacles to be overcome if the co-operation of teachers in the renovation of the educational system is to be obtained. They also demonstrate that the first obstacle of all is the absence of an explicit agreement about the direction and scope of the innovation involved.

These two series of considerations overlap. It seems useful, therefore, to take account of their common conclusion. Certainly no one will dispute that educational renovation is urgently needed in all Member countries and there are few indeed among serious thinkers who now feel that this can take place by restoration rather than innovation. But if innovation is to be successful its problems must first be clarified. It is only by clearly stating the problem (and this cannot but be arbitrary to some extent) that a coherent and credible strategy can be worked out and teachers encouraged to contribute in ways which they themselves would help to determine. A language in common and a concerted effort are required to bring this about.

I. KNOWING WHAT WE ARE TALKING ABOUT

The expression "educational innovation" may refer to a wide variety of operations: the simple updating of content, the introduction of a new method or technique in a limited field.... or the reorganisation of the entire educational system.

Whatever the case, we come up against a common obligation: the teachers must not be overlooked. Experience has shown that imperative rules are just as powerless to change classroom practice as teacher-proof equipment, if the teachers do not give their full support - together, of course with the appropriate competence. And what is true of a small innovation in one subject is still more true of a measure affecting the whole school organisation.

In short, the first condition for the success of any attempt at educational renovation, whether one small element or the whole system is concerned, is to gain the teachers' support. It is therefore necessary to be able to explain to them unambiguously in the first place the exact aim of the operation, as a basis for discussion, and to set out the guidelines of a plausible strategy. It is not enough for intentions to be pure and planning judicious, there must also be a common language with the interlocutors into which intentions and ideas can be translated intelligibly and convincingly. A comparison of the English and French terminologies however and an examination of either individually show that educational language is ill-fitted to meet these conditions.

"Elaboration des programmes d'études", for example, is franglais. Outside the circle of the initiated (who automatically translate it as "curriculum development") this expression is very likely to be misunderstood and launch any discussion in the wrong direction. For the ordinary teacher, it calls to mind the process preceding the publications of the syllabuses, time-tables and instructions that comprise the official framework of the school curriculum and final examination. The tradition in France is for teachers to take part in the work of the preparatory commissions, but only as experts (whether they represent associations of subject-matter specialists or teacher unions) and only in an advisory capacity. In view of this, teachers, even though executive agents, do not feel a concern in the classroom for the content of the curricula that their own colleagues have helped to prepare. Such participation has no effect on innovation.

Moreover, to refer to the latter by using the expression "élaboration des programmes d'études" is to misunderstand the real importance of the word curricula (and to encourage this misunderstanding). This importance is appreciably reduced by the autonomy

which a French teacher expects and - with nuances according to level and subject - is generally granted. The most fruitful innovations, e.g. the "classes nouvelles" in secondary schools, and the Freinet-methods in primary schools where school time is divided between lessons and sports or recreation education (as is usual in many other countries), have developed without any change being made in the curricula. That is why the redefinition of curricula is not a task with which teachers should be associated as a matter of priority. The result would, on the contrary, be to plunge them still further into their traditional way of thinking. They are only too inclined to consider that their responsibility in the classroom is exclusively to "follow the curriculum", with no other restriction on their autonomy than the demands of the examination. But we know very well today that the essence or centre of gravity of educational action does not lie there and that it relates to the whole of the pupil's experience in school (and perhaps outside school). This is the field of "educational innovation" and the real objective of "curriculum development" - at least for certain people.

The use of English terminology offers no escape from ambiguity. The relationship between "curriculum development" and "educational innovation" (between which Mr. Bolam inserts "curriculum innovation") varies from one author to another, according to whether they give "curriculum" and "development" a wide or a limited meaning. "Curriculum" is very close to the French "programme" in the expression "science curriculum for the 5th grade for example". Elsewhere, it covers all the activities offered by the school under its own responsibility - including "extracurricular activities". Similarly, "development" may be taken in the strict sense of the American R & D process. But it can be viewed much more broadly if we consider that the only worthwhile innovation is the one we observe in real practice in the field. Small wonder that it is difficult to find a single unequivocal French equivalent for a combination of two such elastic words.

The French version of the "Handbook on Curriculum Development"(1) therefore varies the translation according to the demands of the context. Without altogether dropping the expression "élaboration des programmes", which has already come into use if only in restricted circles, preference has been given to terms which are less likely to mislead the French reader e.g. "mise au point de nouveaux programmes scolaires" or, better still (dropping the word "programmes"), "innovation pédagogique expérimentale" (or "contrôlée" as opposed to spontaneous, effervescent or uncontrolled innovation).

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1) Guide pour l'innovation pédagogique - Elaboration des programmes scolaires, OECD, CERI, 1975.

It would be a mistake to underestimate the importance of these problems of terminology. They would be of minor importance if the matter were restricted to the experts. It ceases to be so in an operation which by its very nature calls for lucid discussion not only with all teachers but in full view of the general public. The crisis in education today concerns everybody, whether they be policy-makers, educational researchers, educational practitioners, users of the service in various guises, parents, employers or pupils. All these partners need a common language which is as limpid as the nature of the problems permits and all the more resolutely clear as it is difficult to put the problems in objective operational terms.

However, the basic terms themselves, those which everyone thinks he understands, are a never-failing source of misunderstanding and endless arguments which rapidly end, if they do not begin, with unwarranted insinuations. A fine example was provided in 1972 with "enseignement" and "éducation". The Inspection générale de l'instruction publique (General Inspectorate of Education) felt it worthwhile to devote a whole week to studying "Instruction et éducation dans l'enseignement d'aujourd'hui"(1). And the new statutes for a number of categories of teachers have raised a storm by stipulating that the teachers (professeurs) concerned "should take part in educational activities mainly by providing a teaching service" ("participent aux actions d'éducation principalement en assurant un service d'enseignement"). This is because the concepts of "éducation" and "enseignement" raise, both in principle and practice, the issue of the school's mission and the teachers' function. In any event, to call secondary (or primary) school teachers "enseignants" rather than "éducateurs" is in itself an implicit choice and an ambiguous, since unformulated, one. Faced with the innovation proposed, many teachers will react differently according to whether they feel it concerns them properly as teachers (who feel legitimately concerned by the modernisation of their subject) or whether they feel that its effect, if not its purpose, is to convert them into "educators" in accordance with a new (and suspect) concept of the function of the school in contemporary society. One hesitates to redefine such current words, but experience shows that it is not healthy to speculate on their malleability. In any event, in an atmosphere where mistrust and misunderstanding combine and support each other, too much care cannot be devoted to eliminating any ambiguity in the definition of innovations in which it is hoped that teachers will participate.

A French teacher would probably be clearer about the projects he is asked to participate in if the term used was "recherche

1) See the report in the Annales du Centre Régional de Documentation Pédagogique (CRDP).

pédagogique" instead of "élaboration de programmes d'études". He would then quite naturally think of the activities carried out by the research department of the INRDP in association with a whole network of experimental classrooms or schools. The protagonists of such activities are always teachers working as a team under conditions that are very close to the usual norms. In this, they are pursuing a long-standing tradition. Twenty years ago, when the INRDP was still the Institut Pédagogique National, its creator and leading spirit, Louis Cros, regarded his Regional Centres as "a meeting place for the members of the teaching profession" and as an instrument which teachers could use in order to enable them to participate in the "constant improvement of teaching methods and materials" as this "could not be expected either from the sole action of a few isolated teachers or from any research which remained outside daily classroom experience.....but must be the work of the teaching body as a whole". There is a perceptible link here between this concept and the British "Teachers' Centres" which we think of as an example today.

Without losing its concern for contact with "daily classroom experience", the concept of educational research has moved towards greater rigour in organisation and scientific control. It has incorporated the idea of "research and development" modifying it, more or less consciously, to some extent. The term "recherche et développement" in French educational language does not coincide with R & D, its English counterpart: "recherche" covers it all, while "développement" corresponds rather to the later stage of "dissemination". For his own purposes, L. Legrand prefers to use the expression "recherche-développement" which rejects the dichotomy between laboratory research, i.e. the work of specialised researchers, and development, which might be the more or less rapid general application of the findings of the former. In fact, the main research at present in hand under his direction concerns educational or structural innovations which have already been approved in principle by the Ministry. There is therefore at one and the same time a more or less defined general application together with methodical revision. Experts and practitioners work together on the basis of assumptions which are no more than the formalisation of accepted decisions, the task being to make them operational and not normally to discuss them. The situation is manifestly fertile in risks of conflict either with the authority which took the decision or with those (especially teachers) who dispute its very principle, the decision often being no more scientifically justified than the opposition to it. This is where the interaction, unavoidable in such matters, between science and ideology makes its appearance.

The ambiguity of the situation combines not only with the liberal tradition referred to above (inherited from a time when the

controversy over education was less radical) but also with the claim more or less vociferously put forward by various educational or political groups for every teacher to have the right to experiment freely in education. And it obscures, when it should clarify them, the the functional relationships to be established between experimental innovation and the educational system as a whole.

Nonetheless, we would have more chance of being understood by teachers and of arousing their interest if we asked them to take part not in "curriculum development" with no clearly defined aim but in "research-development" in which their function as teachers would combine with the role of experimenters whose aim, as Mr. Bolam says, is to adapt the educational system as a whole to the modern world.

That is in fact what is now involved: no-one today disputes either the existence of a world crisis in education or the urgency of modernising the educational institution. However, according to the analysis made of the nature and causes of the maladjustment, such modernisation can be conceived in many ways, both as regards its aims and its strategy. And all this depends in the last resort on the reference values chosen, which are of an ethical and political nature.

These variables are quite easily omitted when theoreticians speculate on educational innovation. They seem to feel that there is tacit agreement concerning the aims of the educational enterprise and that the purpose of experimental innovation is simply to correct and improve its operation. But today this hypothesis smacks of the policy of the ostrich. Moreover, in the absence of explicit political premises, the very logic of research leads, to a state of indetermination. The only way to escape is to reintroduce surreptitiously or unconsciously political assumptions into the solutions put forward - and this runs contrary to both the spirit of science and to simple honesty.

The INRDP teams which are working on the organisation of the Collèges d'enseignement secondaires (CES: lower secondary schools) have come up against this methodological difficulty. They discussed it at a symposium in Dijon in March 1973, and the record of the proceedings is very revealing(1).

II. KNOWING WHAT WE WANT (...AND SAYING IT)

The research on the organisation of the CES, launched in 1967, touches on the thorny problem of equal opportunity (an excellent

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1) INRDP working paper (mimeographed).

example of an issue which is bedevilled by one resoundingly empty claim after another, whereas its elements should be clarified on the basis of scientific experiment so as to convert a requirement of justice into an operational objective).

The immediate aim is to define differentiated types of teaching intended to individualise education on practical lines and solve the problem of repeaters and premature drop-outs.

To ensure that this teaching is really appropriate to the pupils concerned common terms of reference are needed. The reason for taking a variety of routes suited to the pace of each pupil is to enable them all to arrive at the same time (since there are to be no more repeaters) at what is at least a common minimum standard to be used as the point of departure for subsequent development which may be more or less rapid, more or less direct, but will always be feasible (otherwise we could not speak of equal opportunity). We therefore have to work out core curricula which can be used in different forms of teaching and can be optionally expanded for abler or quicker pupils, while weaker or slower pupils are given special assistance as a matter of priority.

In this perspective, it is essential to define targets in each subject expressed in terms of observable and even measureable behaviour (skills, abilities), and work out appropriate instruments of evaluation: this was the central aim of the Dijon Seminar.

In these investigations it was possible to make use of the work already carried out by biologists. Since 1970 the experimental CES have also provided the terrain for research on "a number of problems raised by the application of the Circular of 17th October, 1968 (biology teaching and initiation into experimental work in the 6th and 5th grades)"(1).

This official instruction gives the initiation into experimental work precedence over book learning and allows teachers and pupils "the greatest freedom... in the choice of problems and subjects for study".

However, one of the concerns of the teachers engaged in this research was to prepare a check-test common to all the experimental classes which would enable them to use the same yardstick to measure the development of their pupils' abilities and the effectiveness of their own work. The freedom allowed by the Circular deprived them of the traditional method of checking rote learning with reference to an itemised syllabus. Each class might very well have availed itself of its freedom to strike out in a different direction and at a different pace from the others.

The teachers concerned therefore agreed on some two hundred behavioural objectives under five headings:

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1) i.e. the first two years in French lower secondary schools.

- application of basic languages,
- organisation of work,
- acquisition of methods,
- acquisition of techniques,
- acquisition of knowledge.

(It will be noted, in passing, that the compiling of this table was a specific contribution by the teachers concerned to the "development" of what has become their operational "curriculum").

At the same time, with the help of psychologists, they drew up an analytical grid against which each of them could check his own activity, i.e. see what function he actually performs during the pupils' work and how much free play his teaching leaves to the initiative and decision of his pupils.

The combination of these two procedures is very revealing. As soon as behavioural objectives are fixed in the context of an activity where the development of an attitude (the experimental approach) is sought for its own sake and no longer regarded as arising naturally out of the acquisition of knowledge (biology learning), the result is that these objectives are not only arranged in sequence but ranked in order of importance, while consideration is also given to the emotional and social circumstances of the learning process and the interactions between the teacher's approach to his task, the pupils' motivations, small group dynamics, etc. This is especially true since the cognitive targets, which are specific to the discipline (or common to several disciplines), cannot be separated from non-cognitive targets, which are those of school education as a whole. The order of importance assigned to objectives to enable the activity to be performed concerns both the cognitive and non-cognitive ones; their relative importance varies according to the function assigned to the school by those responsible for the system.

This is a very important issue because the order of importance adopted necessarily affects both educational practice and the criteria of evaluation. And it can only be decided in the light of a social requirement which is ideological in nature since it involves values. This social requirement decides whether it is more important on leaving school to be able to handle a hammer (or a volley ball) or to have some idea of the underlying principles of physics, biokinetics or technology. Under the first assumption a cost-benefit study may perhaps indicate a type of drill which is obviously ruled out under the second assumption. The teacher constantly has to decide (and his decision will determine the choice of his teaching method) whether he is expected to favour the quarry or the hunt, the knowledge acquired or the method of acquiring it or....the hunter's ethics.

Another piece of current research concerns "the contribution of science initiation to the general aims of the elementary school". As is the rule in every democratic country, these general aims include citizenship education. Science initiation should contribute towards this by facilitating access to fully objective and responsible thinking - which naturally rules out dogmatic teaching. But another perspective is possible in which the first result expected of early initiation, in science as in sport, is that it should reveal and encourage the talents of research workers, technicians or championship players rather than develop in everyone the competence required to act as a citizen of today. Educational methods would probably be different in this case and would have to be devised in the light of other criteria.

It is considerations such as these, arising from the actual practice of research, which lead Louis Legrand to conclude: "A curriculum should never be drawn up without taking account of the socio-economic aims of the school in general. And this should be done in two complementary ways:

- first, the learning process is not unrelated to the general interdisciplinary or rather transdisciplinary aims of education. Creativity, sociability and autonomy will or will not be developed in the context of the discipline according to whether the same content is used actively and co-operatively or strictly didactically and authoritatively. A curriculum should therefore never be separated from the method used as a medium for these non-cognitive general educational values;
- secondly, the discipline should also be related to the general function of the school, in the broader framework of an economic and technological system....

It is in the light of all these considerations that the aims of any teaching will be ranked, taking account both of the internal economy of the discipline, the socio-economic and technical aims of the teaching and the political and philosophical values consciously assigned to education".

These words are cogent enough when the task is to determine the content of a discipline but they are even more sound when it comes to organising a whole school either in its day-to-day activities or from the standpoint of the actual teaching. Streaming of pupils in the C.E.S. may seem to be a technical issue and yet that problem cannot even be formulated correctly without raising at each step the question of the type of man and the type of society we wish to foster in the future.

What Louis Legrand has written in a handbook, which is concerned with the elementary school and is in no sense a political

pamphlet(1), may apply here. After noting that resistance to educational reform "is not only due to psychological structures" but "comes from a necessarily political choice", he continues: "That is why it is essential to investigate the value of the political and ethical aims which governed the creation of the primary school under the Third Republic. The present texts are silent on this point, as though maintenance of traditional aims went without saying and as though the new edifice merely responded to the same values while allowing for the new socio-economic context. But this implicit continuity is not unambiguous. The absence of official precision is more a reflection of the lack of clear and consistent thought in this respect than of confidence in traditional values. And this confusion is not only in the minds of the political authorities. It is widespread in public opinion and among teachers themselves;... this absence of explicit ideology in the state school of today is perhaps the fundamental educational problem". He draws a personal lesson from this comment: introducing a handbook of practical education he considers it "essential to stress" the common "ideological foundations" on which the various authors of the book base their recommendations.

As a "fundamental educational problem", the absence of an explicit ideology cannot fail to be the major obstacle to the teachers' commitment as individuals and as a social body or group to the constant improvement of the educational system - since only an "explicit ideology" can show the direction and scope of such improvement. It is for this reason that we feel it necessary to insist on a prerequisite which is frequently omitted, as though the teachers' participation in experimental innovation raised only problems of organisation and training. The purpose of experimental innovation is to make a practical improvement in the quality of educational activity. This obviously assumes a reference model with which to compare such improvement i.e. the priority grading of cognitive and non-cognitive targets. And the analogy goes still further: just as the priority grading of cognitive objectives dictates teaching methods, so the priority grading of broader educational objectives dictates the style of innovation - and in particular the forms of teacher participation. It is consequently not possible to dispense with an "explicit ideology".

An explicit ideology is a credible determination expressed in language which has been freed of its ambiguities by a concerted approach. In order to be credible, it is not sufficient (as L. Legrand also says) to invoke "freedom of thought" - equated with a mastery of intellectual processes - or to claim allegiance to "the ultimate aims of a timeless democratic education". These generous intentions

1) Pédagogie fonctionnelle pour l'école élémentaire nouvelle (Functional education for the new elementary school), Paris, 1973.

must be translated into operational targets, reality must be taken into account, i.e. the psychological and socio-economic conditions without which individual liberty of conscience is a myth "access to knowledge must not be given precedence over the social activities on which it is based and which produce it", and functional consistence must be established between the structures of education and the aims assigned to it. The specific role of experimental innovation is precisely to help to define the conditions for such consistence, with the support of the educational sciences, and to accompany and guide the translation of ideology into action.

Seen from this angle, educational innovation obviously requires the support of teachers and must take place in the field itself. The very concept of "operational" objectives (i.e. explicitly linked to a strategy, to resources and to evaluation procedures) means taking account of variables and practical parameters which are only identifiable in a context (institutional, socio-economic) and a situation (political, economic) which are also determined. This has a second consequence: educational innovation cannot be treated in the abstract (any more than the role which teachers can play in it) but only in relation to a given educational system with its structures, targets and constraints (international comparison retaining its full value in clarifying the problem and international co-operation helping to co-ordinate the answers when the problems become worldwide).

By way of methodological illustration, an Annex now follows which outlines what an ideology of education might be in France. It also describes, among other things, how experimental educational innovation might be coupled to the educational system as a whole and, consequently, the ways in which teachers might participate in innovation.

Annex

OUTLINE OF AN EDUCATIONAL IDEOLOGY APPLICABLE TO FRANCE

Taking up the preceding conclusions, we may say that it is not possible to deal effectively with the teacher's role in innovation without specifying the type of innovation concerned, the system of values to which it belongs and the educational system and social, economic and political environment it has to be fitted into.

On the other hand, it is possible to make practical proposals concerning the participation of primary and secondary school teachers in the educational renovation of French elementary and secondary schools in the context of the 1970s, on condition that the aims of this operation have first been explicitly stated and the main lines of the strategy envisaged for achieving them defined.

The purpose of the following exercise is to illustrate this argument.

It is no more than an exercise. To state the aims and define the strategy for education is the task of the political authorities(1) and there can be no question either of upsurping the prerogatives of the people, who are sovereign, or anticipating the decisions of their representatives. We merely wish to describe a method of approach using something between a case study and a business game. But the game is not a gratuitous one: the facts are not arbitrary but borrowed from the actual situation.

It may appear surprising that the French example has been chosen for such a study. The gigantic size and centralisation of the educational system, and the passionate arguments aroused by any project for reform more or less explicitly associated with plans for society, might seem to make this undertaking somewhat of a gamble. This all too Cartesian country, say some observers, appears to be mightily forgetful, teachers included, of the elementary rules of Descartes' method. Descartes recommended seekers after truth to be

1) "The great responsibility is political because the educational system with which a nation endows itself has no meaning except in relation to the idea it has of its own history, potentialities and ambitions. The school is the mould for society...but the mould must have been shaped by a political intention". (National Plan for Lifelong Education - Hommes et Citoyens, March 1968).

careful to avoid haste and prejudice. We have come a long way from that attitude today. The "Commission d'études sur la fonction enseignante dans le second degré" (Investigation Committee on secondary school teaching) had hardly published its report (the "Joxe Report") when some teachers' organisations denounced it as a decoy which should be exposed ("Wise Men" established by the government could only be the hostages of the governing class), while others (considering the political leanings of the Board's members) saw in it a revival of the subversive Langevin-Wallon Plan. On hearing the same people a few months later, it was difficult to tell whether the National Symposium on Education was a capitalist machination or a revolutionary conspiracy. The only thing certain was that there was a plot.

This may make one smile - or throw in one's hand. But we speak of it here because it is a very serious obstacle which any attempt at innovation prompted by the government must inevitably contend with in France today. A calm - and critical - reading of the Report of the "Commission des Sages" and of the proceedings of the National Symposium shows that these documents(1) deserved to be carefully examined and not condemned out-of-hand. But it is impossible nowadays to escape indictment for presumed intentions, this now being part of the conventional tactics of ideological warfare and by no means an exclusive practice of the Opposition or the teachers.

France - which is not alone in this predicament - is a country where the major liberal and socialist ideologies (with their various respective tendencies) stand face to face along a fluctuating and unsettled border line. The political situation is such that the great majority of teachers belong to professional organisations which are in open disagreement with the government's political and social concepts (whether real or imagined). How in these circumstances are they to get back on to the same wavelength and agree, if not about the solutions, at least about the terms of the "real problems"?

However, whatever difficulties may arise, it is impossible to dispense with the preliminary debate which determines, if only in the form of common working assumptions, the aims of the educational system and the targets for its renewal. The ideological cleavage must simply be included with the other problems so as to prevent it from paralysing the issue: it is not a passing incident but a basic factor which it must be realised is in the nature of things, and for many reasons.

This is in any case what the Joxe Report advocated, with the further recommendation that the school should also be taught how to "manage conflicts" as well as to solve problems. And Louis Legrand notes, in connection with the ideological disagreements which underlie the quarrel concerning the way the French should be educated

1) Published by "La Documentation Française", Paris.

"... without underestimating these problems, we do not think that an agreement on values is a prerequisite for any attempt to analyse educational targets... The divergence between values and priorities is not an obstacle to objective analysis of the positions adopted, whether they be traditional or revolutionary. We think even that an analysis of this kind will probably serve to clarify the debate and help us decide more effectively what is desirable, feasible and real".

It is one thing to regard this divergence as a factor for scientific consideration with a view to taking a strategic decision, quite another to evade the issue because its background is ideological.

Moreover, the disagreement of principle does not prevent us from listing, as Louis Cros has recently done(1), a whole series of "convergent educational ideas" which include not only the shortcomings of the educational system but also the remedies suggested (whose connection with the shortcomings emerges with varying degrees of cogency according to the case).

Let us summarise this list by way of illustration. The author's comments are perhaps still more valuable, but it would take too long to quote them here. His convergent ideas concern content, structures and methods, examinations and the strategy of change.

The reorganisation of content should endeavour to keep to the middle of the road between encyclopaedic knowledge and early specialisation which are equally harmful, and strike a balance between a general interdisciplinary education and optional studies to a more advanced level.

With regard to teaching structures and methods, he recommends:

- general adoption of nursery schools;
- a common basic school offering different types of teaching; a flexible grouping of pupils with room for individual work and group work, which are conducive to training for responsibility;
- teaching which is based on real facts and does not raise an unwarranted barrier between the school world and recreational activities of an educational nature;
- a training in expression in all its forms;
- replacing history, geography and science teaching by creative activities at elementary level and by integrated teaching thereafter;
- mathematics teaching geared to genetic psychology but also to the actual needs (and especially the practical needs) of most pupils;
- a place for the fine arts, crafts and physical education regarded not as mere recreation but as essential factors of mental, physical and social development;

1) L'Education, No. 217, 19th September 1974.

- a rational use of modern information techniques (audio-visual media and computers).

The validity of marks, examinations and diplomas is strongly disputed; it is hoped to replace that which goes by the name of "orientation" and is based on failure first by psychological and educational guidance in the light of a definition of specific operative abilities and, secondly, by practical guidance with concerted contributions from the occupational and social sectors and the school itself; lastly, worries about selection would be limited to strictly occupational needs which must of course be taken into account, but neither alone nor as a primary consideration.

Finally, as regards strategy, changes can only be made, according to Torsten Husén, quoted by L. Cros, by "helping teachers to organise the educational system", in particular by associating them with experiments designed to distinguish what is feasible from what is desirable and by indicating the tactical means of achieving the ends in a given local context. This brings us back to the heart of our subject.

Such convergent ideas may be a passing fashion and the result of superficial mutual borrowing. They may also be the visible outcroppings of deeper trends or aspirations whose common source remains concealed, and may reflect a shared, unformulated concern. In practice, the list is valuable since it suggests a number of points for discussion which might give rise to limited agreements - soon to be challenged when the causes of shortcomings are investigated and as soon as solutions are discussed. In fact, the detailed measures recommended take on their real meaning only as a co-ordinated whole. An organising principle is necessary to make this whole into a system which has no internal contradictions or incompatibilities and comprises a priority grading which takes account of the choices necessarily imposed at one time or another by the limited resources available. And the adoption of a principle of this kind necessarily has ideological and political implications - just like the investigation of responsibilities for the operational defects to be corrected. At both the planning and the implementation stages, reorganisation of the educational system is inseparable from the social system in which it has to take place; hence both the importance and difficulty of choosing the organising principle required.

Although the school's contribution towards changing society has turn by turn aroused hopes and disappointments which were perhaps equally exaggerated, it might have been possible in France to consider combining educational renovation with social renovation having regard to the priorities chosen for the VIth Plan for Economic and Social Development: economic growth through industrialisation, reduction of social inequalities, improving the quality of life.

But apart from the fact that the Plan itself did not escape the usual suspicions fundamental differences persisted about the internal articulation and order of importance of these three major priorities. Even when it is generous, liberal capitalism makes economic growth a necessary prerequisite for reducing social inequalities; even when it is realistic, socialism gives the latter absolute priority. But the contribution required of the school is not the same in both cases nor, subsequently, is the direction to be given to innovation.

Similarly, the concept of "quality of life" may be imagined mainly in terms of infrastructure or of the campaign against material pollution with its economic effects, or else in terms of the individual and community aspirations to be satisfied, the humanisation of social relations, improved living and working conditions, etc. And different priorities result - in measures relating to the educational system and elsewhere.

In short, although the Plan included a chapter on education and its provisions could be related to general priorities, there was no coherent articulation which would have shown whether the means were adequate for the ends. And experimental innovation or educational research were still marginal.

UNESCO has suggested the concept of lifelong education as an integrating principle. France should be particularly receptive to this idea since, after lengthy consultation between the social partners, continuing education as a part of lifelong education has been written into the law as "a national obligation".

But here too, a priority or balance has to be established between the two ethical or pragmatic motivations from which this concept may principally derive. For some, continuing education is a question of efficiency, a response to a challenge from the contemporary world, in which methods and knowledge are constantly outdated by the pace of change. For others, it is mainly a question of justice: new opportunities for training should be made available to those who were not able - or did not know how to - grasp the initial opportunities they were offered (not always adequately, in any case). Organisation, content and methods will necessarily be affected by this.

Under any assumption, continuing education is henceforth a compulsory reference concept for any innovation project, whether it concerns the educational system as a whole or only early schooling: the latter must in fact be necessarily changed once it is regarded as the first stage in a lifelong education.

In 1968 France had already proposed a soundly argued "National Plan for Lifelong Education"(1). However, in spite of the work of pioneers such as Bertrand Schwartz, no one has apparently so far exactly measured the implications of this new approach in France.

1) Hommes et Citoyens, Bulletin, March 1968.

There remains the possible reference to a third guiding idea which may also include both the preceding ones. At the National Symposium on Education in November 1973, the speaker on the subject of "The aims of education", Jacques Delors, launched an appeal, in terms exactly reiterated by the chairman Pierre Massé, for a "new form of citizenship":

"To arouse in each person a fully motivated feeling that he is in a school for everyone, a living symbol of belonging to a community with its own history, solidarity and future. Is it too much to ask Frenchmen to adopt this common approach, and yet not give up any of their own philosophical and religious convictions? Is it possible to speak of democracy without this common minimum?".

As was to be expected, this suggestion met with a mixed reception: it could not fail to surprise, if not shock, in a country where the training of the citizen, which has always been solemnly inscribed, together with the training of the man and the worker, among the school's essential tasks, has long since ceased to be the subject of any activity specifically relating to the acknowledged importance of the stakes involved. It is as though the declared aim had in fact been spirited away by a sort of tacit agreement comparable to that by which the loudly trumpeted change from "instruction publique" into "éducation nationale" was sidetracked into "enseignement public".

But in fact the paradox is strong enough to warrant an exhaustive discussion which would throw light on the complicated and largely contradictory reasons for an aloofness which is undoubtedly prejudicial to the functioning of a Republic. In point of fact, since 1968, we dare not completely evade the debate on aims but dare not face the reality covered by words whose ambiguity camouflages the disagreements and excuses us from taking sides. But we should not remain in that position any longer in France, where an enduring tradition, to which the great majority of teachers in particular are still very attached, considers the school as a public service which is administered (except in the always contested cases when that administration is partially delegated) under the direct responsibility of the state, and whose teachers are civil servants bound to preserve discretion but jealous of their liberties as citizens.

Even though it breaks with customs which are obviously stronger than statutes, the proposal that the reorganisation of the school be based on the training of tomorrow's citizen is perfectly reasonable and feasible. It can in fact be given practical extensions which ideological differences by no means prevent from being decided in common.

What is a citizen in fact? A person (of either sex) who consciously agrees to take his own share of collective responsibility

in the various communal groups to which he belongs, (ranging from the family to mankind as a whole and including all the many intermediate communities), and which condition him (and no doubt alienate him in various degrees) but without which he would be nothing.

This concept implies the two seemingly diametrically opposed notions of autonomy and solidarity, and includes both facts and values. And that is why an operational consensus can very well be achieved with regard to the recognition of the normal salutary nature of differences of opinion in a democracy where the tradition is one of alternation and pluralism; in a field where the ultimate causes of disagreement are far from being rational but are due not only to material interests and to class allegiance but also to unconscious collective attitudes linked to a past and a region, such as those revealed for example by research on electoral geography or the continuity of structures perceptible after the most radical changes of regime; facing a world and a future which are so uncertain that it is obviously wise for the community not to put all its eggs in one basket, and in an economic situation which is so changeable that the same team cannot always be the most appropriate to master it (any basketball coach knows that).

Everything therefore invites enlightened citizens to agree in regarding the absence of a consensus not only as an established fact but as a possible incentive for progress rather than a motive for useless reciprocal anathemas. It then becomes conceivable and even logically necessary to put civics back into the school curriculum without first emptying it of the controversial subjects which make up its essence. In any case, it is totally unrealistic nowadays to preserve the fiction of a school which is sheltered from the passions that agitate public opinion and dedicated to pure intellect, that is, as experience shows, to preparation for examinations whose social repercussions have by an irony of fate now given them a political dimension. A virtue must be made of necessity and politics officially allowed into the school since in any case they seep in through the information media, the pupils, whether they have attained their majority or not, and the teachers, who are also citizens. Only de jure recognition will enable rules to be fixed so that any political discussion in the school is worthy of the school and consistent with the respect due to the children, especially because of the diversity of their minds. If we think about it, the status of citizens is the only asset which is really common to all the members of a democratic community; and this common asset not only permits but in a country like France implies differences of opinion, free discussion and the ability to "manage conflicts" (for the school, this also implies shifting from the tradition of keeping controversial issues outside the school towards a new attitude of equal

discussion - a development which might be the subject of experimental research such as that carried out in Sweden on religious education)(1).

We are not referring here to a timeless ideal - although historical references can be quoted - but to a practical answer to a topical problem. The training adopted for the citizen of tomorrow holds a twofold interest from the educational standpoint: it can be given an absolutely workable content in which the targets, the approach and the evaluation procedures are associated by necessary reference to a situation which is itself very specifically defined.

The citizen's responsibilities in a modern democracy demand special abilities corresponding to functions (personal, family, professional and civic) which may be identified and related to the major statutes (embodied in declarations of rights, constitutions, etc.) whose purpose is to regulate human relations. And these abilities may be translated into types of behaviour acquired in ways that may be assessed and which properly define the aim of education.

The reference situation itself is that of a world in which the pace of change precludes any prejudgment of the future, since the constant elements themselves take on a changing pattern in response to radically new factors. Forecasting exercises and futurology can narrow down the field of probability but cannot eliminate uncertainty. What is certain, on the other hand, is that the school children of today will exercise their responsibilities as citizens of tomorrow in the face of problems about which we know too little to be able even to put our pupils on the right road towards a solution. In addition to identifiable abilities, we must therefore nurture in tomorrow's citizen the capacity, comprising imagination and courage, to discover new answers to unprecedented situations.

If this analysis is accepted, it can easily provide a principle of organisation for the school which meet two apparently contradictory but in fact dialectically complementary imperatives: to make the system (in the proper sense of the word) coherent and to help it evolve on self-regulating lines.

In order to train citizens in the spirit we have described above, education must stress the achievement of autonomy (which implies a knowledge of oneself and one's environment acquired through action and by actively exploring the natural and cultural environment), a training in communal life (which implies the practice of co-operation) and the development of creativity and initiative: this is what is known in France as "pédagogie d'éveil" (creative education) in the elementary school and "pédagogie du choix" (free choice education) at the subsequent stages.

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1) See the Handbook on Curriculum Development, Chapter II, op. cit.

An education of this kind necessarily involves dropping the authoritarian or paternal style both in the relationship between teachers and pupils and between the school authorities and the teachers. The co-operative style is the only one compatible with this education since it offers wide scope for the autonomy of teachers, educational teams (in which the other agents responsible for children's education are associated with the teachers) and the schools themselves. The essential co-ordination (in an institution which continues to be a national one) is provided by supporting networks which intervene on request, just as in the creative classes the teacher intervenes at the request of the children or groups engaged in a research project. The description can be kept very brief here: thus, a number of measures are frequently recommended which are included in Louis Cros' list, already mentioned, the only difference being that they all appear here as coherent consequences of the same project logically built up into a system.

In conclusion, this heuristic approach implies that experimental innovation must be an integral part of the educational system. It should be possible to say, using the usual French or English terminology, that educational research is the educational system itself evolving through experimental trial and error. This is a logical necessity in an enterprise designed to provide training in responsibility and entailing the acceptance of calculated risks. It is a necessity of the moment since our ignorance of the future precludes any dogmatic deduction and imposes a cybernetic type of progression with a feedback system for the reappraisal of the objectives. In the last analysis, every teacher must be a permanent researcher since no one can take his place and decide what he should do in his actual situation (which is affected both by his own personality, the nature of his pupils, the equipment available, the socio-cultural environment, etc.). What we have just said of the teacher, according to the usual stereotype must naturally be transposed to the team of teachers which under the new system will become the smallest unit for educational action.

This brings us back to the problem of mass teacher participation in educational innovation conducted at a school level as near as possible to the "grassroots". And here too, of course, we would find, though perhaps in a new light, all the problems bound up with training, school organisation, the structure of authority and the management of innovation for which Mr. Bolam has drawn up a critical list that is so complete that there is no need to repeat it here. In actual teaching practice, we would also be sure to come up against all the obstacles of every kind that have everywhere and always impeded educational innovation. Tactics alone do not ensure victory. We can hope, however, that the coherence of the project will secure

a better hearing for it both from public opinion, which is in the last resort sovereign, and from the teachers, who can individually, collectively and corporately put decisive pressure on the brakes as well as the accelerator.

Although this theory has not so far been clearly formalised as a whole, it has found fragmentary expression in recommendations or measures which would of course take on all their meaning if they were related to a common principle which could make them fully coherent.

Earlier on, we mentioned the "Joxe Report" whose ruling idea was no doubt that an education in responsibility is required today (suffice it to add that as man lives in society, this responsibility is necessarily exercised in the civic field among others) and that this involves autonomy and participation in the management of schools. And a measure was adopted, though it is still hesitantly applied, which extended to the educational field the competence, too often confined to the problems of management and discipline, of the boards of administration. Schools are allowed 10 per cent of the time-table to use freely as they wish without any curricular assignment. The trouble is that, in a period of shortage and taken out of context, this measure may have looked more like a transfer of responsibilities without transfer of the relevant resources or like a diversion rather than as an incentive to initiative.

A "Texte provisoire d'orientation" ("Provisional guidelines") appeared in October 1972 for the 6th III and 5th III grades(1), and its introduction is worth quoting here:

"The purpose of the present study is simply to suggest, in addition to earlier instructions, a new approach to teachers, their training centres and the inspectors responsible for supervising education in these classes. The suggestions in these guidelines will thus be subjected to the test of reality and general opinion; observation of its results will be regularly organised, in particular at regional and national symposiums; a special board will formulate the conclusions which will be used to confirm or modify the objectives, the content and methods envisaged below."

In the same spirit, the official instructions under preparation for physical education, training in sports and creative activities in the elementary school also expressly provide for a contribution by teachers to the revision of curricula already in use, together with the systematic decentralisation of their definition, as a corollary:

"The role (of the official instructions) is threefold:

- in the context of the general educational goals, to remind teachers of the special aims in the fields concerned in the

1) "Less academic" pupils are guided into the III stream in the first two grades of the junior secondary school.

light of the findings of the social sciences of the present state of the educational structure and the cultural environment and, finally, of more or less explicit plans for society to which it is normal that a public education service should contribute;

- to clarify the problems thereby involved for any educator (or team of educators);
- to suggest a series of methods for approaching these problems.

"The official instructions thus form a body of references listing the questions which confront the educator who has a broadly defined task to carry out in a community of children. They cannot tell everyone what he has to do in his own actual situation: it is for him to analyse the situation and to prepare his plan of action accordingly."(1)

It should be added, first, that the text quoted here gears creative activities to ethical and civic education, regarded as the major responsibility of the school, and, secondly, that it stresses the teachers' twofold responsibility to adopt an experimental research approach and to work in teams.

In the same perspective, a growing interest may be noted in the concept of target-oriented education, where evaluation is one of the kingpins, and which obviously necessitates training teachers for responsibilities of a new type.

It is of course possible to compare these convergent ideas with those noted by L. Cros and to conclude that the time has no doubt come to clarify the policy to be adopted with regard to the teachers in connection with a coherent - and therefore political - concept of teaching - and therefore, more broadly, of education.

The internal coherence of the educational system conditions both its efficient operation and its acceptance by all concerned. Its principles must also be compatible with the more organic and logical coherence of the social system of which the schools concerned form a part. At the present time, all the attempts to increase the proportion of autonomy in educational institutions in France mentioned so far have sparked off the same controversies, which are fed by the same hopes and the same fears as the plans for, or experiments in, participation or self-management sponsored by the government or peripheral sources. One perspicacious observer recently diagnosed, in the resistance to the modernisation of mathematics teaching, an instinctive reaction to the threat which this change in educational relationships holds for the traditional exercise of authority(2).

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1) Draft Instructions for creative activities drawn up by the General Inspectorate.

2) B. Charlot. "Pourquoi cette querelle?" (Why this quarrel?), L'Education, 14th March 1974.

This is no doubt not the only motive for this opposition which, as always, is multi-motivated but it is a plausible one. The strategy of innovation should in fact guard against provoking this kind of revulsive reaction while encouraging the disequilibria which will force the social system to evolve in order to assimilate educational innovation. This is a further civic responsibility, if ever there was one, which teachers cannot fail to appreciate(1).

1) Some particularly penetrating views on this aspect of a strategy of innovation will be found in various chapters of the Handbook on Curriculum Development, op. cit., especially Chapter III, i.e. the Finnish and American contributions.

Part Five

TEACHERS AND NEW TEACHING TECHNIQUES: SOME FRENCH EXPERIENCES

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I. A FEW BASIC IDEAS ON THE NEW TEACHING TECHNIQUES AND THE ROLE OF THE TEACHER

1. What is meant by the "New Teaching Techniques"?

This expression in fact embraces three entities which must be kept entirely separate; teaching methods (take for example audio-visual techniques as a method of communication) cannot be likened to the teaching material and instruments used to back up these methods (films, transparencies, television programmes, etc.), and this material must likewise not be confused with the equipment used to dispense it (projectors, television sets, etc.). Given this distinction, it is easier to attribute various qualities to, or to criticise, either the equipment used for circulation, the material circulated or the method as such.

It should be said at this juncture that we are dealing here only with teaching methods and material which will be referred to jointly as teaching techniques.

Of the methods that are most frequently used and/or are the subject of innovation in teaching in France (they are, moreover, much the same in most OECD Member countries), the following four were selected in the light of the teaching experiments described below:

Audio-visual, in the form of short sequences which take place at various intervals in the teaching programme, the instruments most frequently used being:

- photographs and slides;
- transparencies for retroprojectors;
- 8 mm or 16 mm films;
- television programmes.

To begin with, audio-visual material used to be placed at the disposal of teachers without any attempt to adjust it to circumstances, whereas now it tends increasingly to be proposed as part of a more or less comprehensive teaching programme (with, for example, advice as to how to lead groups, application exercises, case studies, etc.), and is known as a "multi-media training kit".

Programmed learning, which initially took the form of programmed books (linear or branching programmes) has been developing for some years now in the form of more flexible and adaptable documents (for example, programmed instruction cards). As an experimental method of teaching, above all, it is more and more frequently used in preparing and assessing the most varied teaching documents.

Educational simulation, which is a method consisting of providing students with models or simple materials and allowing them to carry out as many tests and experiments as they wish in order to discover a phenomenon, a mechanism or how to solve a problem. This discovery, which is made by the students themselves, is guided and controlled only by the results of their successive experiments and, in some cases, by accompanying documents(1).

Fourthly, the use of computers by students - the computer being a particularly useful piece of equipment for training purposes since its logic and memory enable it to carry out very varied types of dialogue, for example:

- documentation;
- self-assessment of knowledge;
- calculation;
- problem-solving;
- the simulation of complex situations;
- the stimulation of creativity.

So far as concerns the various uses of computers for teaching purposes, reference may be made to the documents produced and/or circulated by the OECD Centre for Educational Research and Innovation.

2. The present role of the teacher

The teacher's present-day responsibilities are composed of his old duties which have been modified, and duties which are altogether new.

a) The teacher's old role has changed in relation to the knowledge that he has to convey to the student, in relation to his approach to teaching (i.e. mainly to the processes of analysis and synthesis) in relation to his students' ability to express themselves and, lastly, in relation to the acquisition of general methods of thinking rather than isolated items of information.

Let us briefly consider the way in which the teacher's four main roles have changed:

- in relation to knowledge:

  "The role of the teacher as a distributor of collective information has vanished but the far more important role as the distributor of individually adapted information remains."(2)

1) A. Vidal-Madjar "La découverte guidée au moyen de simulations: son aide à l'élaboration de procédures de résolution de problèmes" in Bulletin de Psychologie, 311 XXVII 10-12, 1973-74.

2) L. Svensson, "Individualised Teaching of Mathematics", working paper for the CERI workshop Curriculum for the Eighties and Onwards, OECD, Paris, 1972.

It is no longer possible to think that a class is a homogeneous entity or that a teacher can provide instruction which constitutes a clearcut discipline.
These are the statements expounded upon by L. C. Taylor in his report on the "Implications of a Shift from Teacher-Based to Environment-Based Learning Systems."(1)
It seems more and more worthwhile replacing teaching systems based on the idea that instruction should be given along well-established lines to students considered collectively, with other systems whereby, whenever possible, teachers "should encourage and allow children to provide their own working materials",(2) or else should choose "material of a kind likely to maintain and promote the exploration started by the children".(2)
In France, in the so-called "transition" classes,(3) the teacher is required to concentrate not on the syllabus but on the pupil; thus he is expected to organise the activities of each of his pupils.

- in relation to analysis and synthesis:

In France, teaching methods in most subjects consist at present of analysis for the youngest pupils, often carried to extremes, while synthesis is reserved for final year classes, i.e. in which there are fewer and usually more gifted students. "The disadvantages of this conception of teaching are numerous; the more stress placed on the analytical character of education, the greater the danger of giving it a strongly theoretical, abstract basis. Analysis divides, and by separating ideas from one another it separates them from all forms of reality..."(4) Whence activities such as surveys, environmental studies, etc., which allow a comprehensive grasp of a given topic. The teacher is no longer somebody who imposes and directs a specific method of acquiring knowledge and

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1) L. C. Taylor, "Implications of a Shift from Teacher-Based to Environment-Based Learning Systems", working paper for the Curriculum for the Eighties and Onwards, workshop, op. cit.

2) L. Sussmann, "The Role of the Teacher in Selected Innovative Schools in the United States", in The Teacher and Educational Change: A New Role, Vol. I, General Report, Part Two, OECD, Paris, 1974.

3) G. Ferry, "The Role of the Teacher in Selected Innovative Schools in France", in The Teacher and Educational Change: A New Role, Vol. I, General Report, Part Two, op. cit.

4) R. Lallez, "Conditions favourable to innovation in education: an analysis of the fundamental factors in the recruitment and training of persons responsible for teaching", in The Teacher and Educational Change: A New Role, Vol. I, General Report, Part Two, op. cit.

experience; he observes and, if need be, guides each pupil's or small group of pupils' independent learning process.

- in relation to expression:

The emphasis is more on the capacity for independent and genuine expression than on the exactness of the linguistic code used (whether in learning foreign languages or the mother tongue, or in other subjects).

- and, lastly, in relation to methods:

Given the exponential growth of all the knowledge that a student has to acquire, it is now becoming increasingly clear that the important thing is to dispense methods of learning (i.e. ways of putting intellectual work into effect) rather than knowledge proper. Whence the need for students to learn as early as possible to ask themselves the right questions and to know how to compile background information or prepare a bibliography and organise their own work.
Moreover, this methodological training has the added advantage of requiring, and therefore almost always encouraging, an inter-disciplinary approach.

b) The new role of the teacher. While the teacher's new responsibilities may not be as all-embracing as his old responsibilities, they do seem more and more to be adding to and strengthening the role of the teacher in the on-going experiments and innovations in teaching.

These responsibilities involve:

- group leadership;
- evaluating;
- doing research work;
- using new teaching techniques.

The teacher co-ordinates the various activities of his pupils divided into work groups, and helps them to use their own initiative. The teacher who evaluates endeavours to assess and measure the impact of his teaching on his pupils so that he can adjust it accordingly (feedback). Unfortunately there is not at present a precise model or an accurate instrument for evaluation purposes.

As far as evaluation is concerned - and this is confirmed by P. J. Kelly(1) - we are only at the elementary stage which consists of trying to make a list of questions: who is to do the evaluating? with what implements? at what level should evaluation be done, i.e.

1) P. J. Kelly, "Evaluating School-Based Curriculum Development": Some Points for Discussion. Seminar paper 6 for the Seminar on School-Based Curriculum Development, OECD, Paris, 1973.

should it be internal in order to see whether the aims of a teaching curriculum have been achieved, or should it be external in order to test the validity of a project and its objectives?

With regard to the role of the teacher-researcher, Lallez writes that "the new and exceptional importance attached to observations made under actual teaching conditions gives the teacher who records them a new and exceptional function in the innovation process. For the value of observation depends not only on the place and the circumstances in which it is carried out but just as much on the way in which it is recorded."(1)

Lastly, teachers are coming increasingly to use new teaching techniques such as those described above.

Although, as we shall see from three experiments carried out in France, the role of the teacher in introducing new techniques can vary considerably, we shall also see that the use of these new techniques requires - and consequently encourages - a change in the teacher's old responsibilities (in relation to knowledge, analysis and synthesis, expression and methods), and that it also implies that the teacher must be a group leader, evaluate and do research.

These three examples show that the teacher is never simply a user of new teaching techniques, and that while he may not contribute to their elaboration, he always helps to test and evaluate them.

We shall deal in ascending order of teacher participation in the elaboration of these new methods and instruments with:

1. the use of multi-media training kits;
2. the main facets of the experiment to reform the teaching of physics and technology in the first cycle of secondary education;
3. and, lastly, the initial conclusions to be drawn from the experiment in introducing computers as a teaching instrument in the second cycle of secondary education.

II. THE ROLE OF THE TEACHER IN DEVELOPING NEW TEACHING TECHNIQUES, AND THE CHANGES IN THIS ROLE AS ILLUSTRATED BY THREE EXPERIMENTS IN FRANCE

1. Multi-media Training Kits

Also known as "teaching packages", these usually consist of a book for the teacher, texts for the participants and the varied teaching material, designed for exercises in small groups, case studies and role games or simulation games. They almost always include instruments with which to evaluate pupils before and after.

1) R. Lallez, "Conditions Favourable to Innovation in Education", op. cit.

The aim of these kits is to provide the teacher with all the help he needs to encourage active learning, and also to be more easily available (than is possible as a lecturer) in order to guide and control this activity.

In France kits of this sort have been built up by the Office Français des Techniques Modernes d'Education (OFRATEME) for primary and secondary schools, and usually by private teaching bodies for adult education.

Those responsible for teaching or instructing adults usually receive these kits ready for use and have no part in their preparation (they have been described as "ready to teach"). On the other hand, their role as teachers is far from devalued; before using one of these kits in his class, the teacher has to analyse its content in detail, consider the educational targets of each training session and each exercise and relate them to the requirements of his pupils.

In the light of this, he chooses the exercises he wants among those he is offered, decides which order they should be in and, if need be, adjusts the means of evaluation.

With each new class, the teacher evaluates his pupils' initial level, decides what the aims of his teaching programme are, and adjusts the kit accordingly; he in fact carries out a sort of continuous evaluation of the kit.

Thus, far from being a simple administrator of programmes and methods established by specialists, the teacher is in fact an enlightened user who, by virtue of his new responsibilities as an evaluator, preserves and indeed increases his independence and prerogatives as a teacher. The role of evaluator is at present the most usual role of the teacher who uses new teaching techniques. Moreoever, it is already apparent that the teacher's role in this case is by no means that of a neutral executant or "slave to machinery"; teachers who use new techniques are by no means comparable with teaching automatons.

This myth is based to some extent on a conception which was common when the new techniques were first introduced, according to which the more elaborate the kit was, the less competent its user had to be (from the standpoint of both knowledge of the subject and teaching ability). Practical experience has since consistently given the lie to this conception - as far as both vocational training and teaching in schools are concerned. However, one can take the argument further and ask why the teacher should only be an evaluator of new techniques placed at his disposal by specialist educationalists.

Why should the teacher not have a say in the preparation and/or testing of new techniques?

The most obvious reason is because of the education system; the present status and responsibilities of the teacher do not give him

the time to take part in work of this sort, nor is he mandated to do so (his promotion and career depend on other criteria). In addition to this, school structures at present make it difficult for teachers to work in teams: but the preparation of a kit requires that teachers should work as a team. Thirdly, it is obvious that the preparation and implementation of these training kits can only be done by teams with specific qualifications, particularly in regard to educational methodology and experimentation.

While a liking for and experience of teaching undoubtedly helps to develop these qualities, specific training with regard to teaching is nevertheless necessary. This is why teacher training in its present form - as generally practised in France, and probably in other Member countries too - does not give teachers the grounding they need in order to play a role of this kind.

Because of the need for teachers to have special training in teaching techniques or experimental methodology, it has been suggested that a minority of teachers should receive more advanced training and be made responsible for preparing new teaching techniques, while the remainder, whose training would end earlier, would apply the said techniques.

Clearly this attitude is unfair, and even dangerous:

- unfair because all teachers must, if they wish, have the opportunity to contribute to the preparation of new techniques, and because they are all capable of doing so, given adequate training;
- above all, though, it is dangerous for the future of these techniques and for the future of teachers:
  1. teacher/designers would very soon be cut off from the students whose learning processes they are supposed to facilitate (probably resulting in unsuitable techniques); and
  2. teacher/users would very probably lose interest in their role as evaluators and make the new techniques quite unusable.

Ways will therefore have to be considered of modifying the status and training of teachers so that during their career they all have the opportunity:

- first, to use and carry out an on-going evaluation of existing techniques;
- and secondly to contribute to their preparation for limited periods by being seconded to centres for educational research and experimentation - the best probably being the experimental schools.

Moreover, by gradually increasing and varying the level of teacher participation in the preparation of new techniques, it

should to a large extent be possible to solve the problem of this specific training that will have to be introduced.

2. French experiments in reforming the teaching of Physics and Technology at secondary level(1)

A reform commission (the Lagarique Commission) has been set up in France with the object of finalising teaching methods and material which will enable "students at all levels of secondary education to acquire a liking for scientific and technical subjects, or at least will not destroy any leaning they may already have".

In order to do so, this commission of teachers and research workers proposes to reduce the didactic approach and increase practical activities: the handling of mock-ups and models, the manufacture and/or use of materials, independent thinking about physical phenomena and discussions on certain topics. So far, most of their work has been aimed at intermediate classes, the basic principles being the following:

- pupils' questions must be answered (how does it work? what is it made of?);
- it is important to encourage contacts both with other subjects and with everyday life;
- it is essential that pupils should regain confidence in their intelligence and practical ability, which implies that the new approach should be based on their interests and their conception of reality, and that their genetic development should be taken into account;
- and, lastly, the decisive factor for the success of this reform is extensive participation by the teachers who will be responsible for applying it.

This last principle is essential in that it shows to what extent a reform of this kind implies a thorough-going change in the teacher's old role in relation to knowledge, analysis and synthesis, expression and methods.

How this reform was introduced, and the role of the teacher.

With regard specifically to the role of the teacher, a distinction may be made between:

- the teachers belonging to the team responsible for the modules (teacher/designers);
- the teachers (about 100 of them) who have tested the modules in their classes and thereby helped to finalise the material and documents (teacher/testers);

1) The presentation of this experiment is very similar to that of an unpublished paper prepared by Pr. Delacote's team (Laboratoire de Physique de l'Ecole Normale Supérieure, 4, rue Lhomond, Paris-V) which is responsible for this reform.

- and, lastly, the teacher/users who make the documents and material available to their pupils and carry out the continuous evaluation of the modules (in the same way as the teachers who use the kits described earlier).

These three categories of teacher contributed in the following way to the three successive phases which the introduction of a reform of this kind involves:

a) The design of the modules

i) A team composed of teachers and research workers chose topics (or modules: Astronomy, Chemistry, Electronics, Manufacturing Techniques, Automatisms, Polymers, Photography, etc...) each of which corresponded to a scientific and technical field and was designed to occupy twelve two-hour work sessions for the pupils. For each module, the team then laid down:

- targets - both conceptual (knowledge to be acquired) and methodological (for example, the acquisition of an experimental method);
- content;
- teaching material (panels, mock-ups, instruments, appliances, audio-visual systems, etc.);
- and a teaching approach (semi-programmed cards with instructions on how to handle the material or cope with difficulties, information cards, bibliographical suggestions, test exercises, etc.).

ii) Surveys were then carried out in classes (discussions, questionnaires) in order to find out the pupils' initial responses.
Next, the team worked with a small group of pupils on preparing each of the twelve lessons; this was a "clinical approach" to behaviour (with the help of a videotape recorder and the observation of interrelations inside the group by means of grids) which was designed to record the child's signs of comprehension, incomprehension, spontaneous responses and various skills in order to make them more explicit, understand their origin and trace their development.
If erroneous (residual) responses are observed, a way must be found of gradually abolishing them and replacing them with a scientifically based response, not by imposing one's argument but by means of "repeated comparisons between these responses and the experimental results obtained by the pupils".

During teaching sessions at which these modules are being used, the role of the teacher is therefore to "discuss with his pupils what experimental approach will enable them to confirm or show up the weaknesses in their initial viewpoints".
The teacher thus encourages and stimulates his pupils' activities rather than dispensing knowledge.

iii) This initial phase in the design of a module ends with a text report and the provisional completion of documents and material ready to be tried in the classroom.
Although the teacher/designer plays an essential part in this initial phase, other teachers take part in classroom surveys to find out what questions pupils ask themselves and what their initial representations are.

b) The experimentation concerned a very broad public (various levels of intermediate class in different towns in France) and covered 3,000 pupils in 1972-73.

The teacher/testers then helped to finalise the modules, advising both on material and on the drafting of all the documents.

The evaluation of the modules, which is currently taking place, will deal with the level of interest shown and also with the difficulties encountered by pupils and by teacher/testers.

c) Some modules are already operational, i.e. the "Automatisms" module, for example.

The role of the teacher/user is as follows:

- at the first session, he gives each pupil an initial questionnaire and then shows a film relating to the main theme of the module and answers the pupils' questions;
- at the second session, he splits the pupils into groups of two or three (according to their level) and allows them to choose whatever post they want: real model or simulation panel.(1) The pupils record the results of their work during the two hours, and answer the questions asked on the cards in writing - often in graph form;
- during the following sessions, the pupils change posts, and for the last few sessions they work independently on topics they have chosen, using additional material. The teacher gives them a test at the end of the 12th session.

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1) Work on real models consists of equipping them with cables so that they work and make whatever improvements are requested. The pupils only work on the panel when they encounter difficulties with the models; the work on the panel consists of an analytical study of the difficulty, which is simulated.

It is not, therefore, a question of teaching a lesson to a whole class; the pupils choose their own schedule and work by themselves, the teacher intervening only when asked to do so. The teacher controls the activities of the teams and guides them from one activity to another; he keeps a check on the pupils' reports and on their answers to the questions on the cards.

It is only necessary to look again at the three phases in the preparation of these physics and technology modules in order to appreciate to what extent the role of the teacher, (whether he is a designer, tester, or user) has changed in relation to knowledge itself, to the functions of analysis and synthesis, and in relation to expression and methods, and to appreciate too how important the role of the teacher has been with regard to:

- research;
- experimentation;
- evaluation;
- encouragement and stimulation.

This sweeping change in the role of the teacher merely reflects the enormous difficulties involved in introducing this type of teaching at national level which are, moreover, to a large extent caused by the process of introduction itself.

According to those who launched it, the introduction of a reform of this kind requires both "the help of a research centre and a training programme for teacher/users:

- as far as the training and retraining of teachers is concerned, research is needed to find the most suitable means and methods;
- the role of universities should be to encourage and give their backing to experimentation at local level, training centres and local research groups;
- and, lastly, government decisions are needed in order to guarantee the financing and set up the administrative structures that a reform of this kind requires".

Turning now to the comparison between the respective roles of the teacher in the two experiments just described, it is apparent that:

- in the case of multi-media training kits, there is a small team of teachers responsible for designing and testing the kit, and there are teacher/users who receive the kits and evaluate them in the classroom;
- whereas in the case of the reform in physics teaching, a small team of teacher/research-workers designed the modules (which are also multi-media training kits), but designed them on the basis of direct observations in different classes and in

constant contact with "practising" teachers. Furthermore, the experimentation was on a very large scale and in classes which could be considered representative of all the classes concerned in France, and the results of this experimentation were analysed systematically and incorporated in the final version of the modules.

It is apparent, therefore, that while the roles of teacher/users and evaluators is comparable in both cases, the same is not true of the design and experimentation roles. In the first case, the two roles are usually assumed by one and the same team of teachers and the experiments are carried out in an unsystematic manner. In the case of the reform in physics teaching, on the other hand, the design role has mainly fallen to teacher/research-workers and the experimentation role mainly to "practising" teachers whose comments have been helpful in preparing the final version of the modules. This choice is probably of considerable interest if one considers an earlier remark about the risk of teacher/designers becoming dangerously isolated from the student population for which they cater.

Another major difference between the two cases quoted is that the reform of physics teaching has had the benefit of rigorous testing for teaching purposes - a thing that is neither common nor, above all, easy.

The third experiment which is described below shows how, in contrast with the previous two cases, a teacher simultaneously assumes the role of designer, tester, group leader, and evaluator.

3. The scheme to introduce Computers in Upper Secondary Schools (Lycées)

As far as the change in the role of the teacher is concerned, this project goes even further than the previous ones. Following a brief description of the project, we shall concentrate on the new facets of this development in the role of the teacher, and then discuss the difficulties encountered in introducing a reform of this kind.

a) In order to increase the use of computer sciences in secondary education, the Mission à l'Informatique of the Ministry of Education had, by 1971:

- set up five computer science training centres for secondary school teachers; these centres were located in universities and trained between 15 and 40 teachers per year (either full-time or part-time); 340 teachers have now received this further training and 180 are following the course at present;
- installed mini-computers in 15 secondary schools (Lycées) (CII Mitra 15 or Télémécanique T1600) which work in

conversation-mode and whose standard configuration includes eight alpha-numéric display screens and a remote printer;
- set up at the INRDP (Institut National de Recherche et de Documentation Pédagogique) a "Computer Science and Teaching" section which is responsible for organising national discussion days for teachers from secondary schools (Lycées) equipped with computers, editing a liaison bulletin(1) and facilitating exchanges of programmes between these schools.

Since the number of teachers who ask to participate in these training courses every year is far greater than the number of places available, teachers who are not accepted are offered correspondence courses provided by the CNTE (Centre National de Télé-Enseignement).

It is the intention of the Mission à L'Informatique gradually to equip all French upper secondary schools (Lycées) with computers.

b) The role of teachers who use these computers in their upper secondary schools (Lycées)

The originality of this experiment compared with those discussed above lies in the fact that, although the teachers can use the basic software (programmed learning or simulation) placed at their disposal by certain research centres, and can use programs prepared by colleagues, they usually make up their own programs. Thus, in the first two cases they are testers and designer/evaluators, while in the third case they are also designers of software for teaching.

Also, it is becoming more and more common for pupils, with the help of a pamphlet introducing them to a specialised language, called "LSE"(2) to write their own programs for tutorial teaching, simulation or problem solving. In this case, the role of the teacher is therefore to stimulate and encourage, and this role is comparable to that of teachers who use the physics modules.

Observers of the experiment have, moreover, remarked on the fact that most pupils find it less difficult - probably because they are less reticent - to use the computer than some of their teachers (only a minority of whom, it should be remembered, have received training in the relevant centres). From this has arisen the idea that upper secondary schools (Lycées) should have "computer science clubs" which would not be reserved for teachers but would be equally open to pupils and teachers. Thanks to these clubs, the initiative for training programmes and methods would stem from a process of

1) Liaison bulletin: L'Informatique dans l'Enseignement Secondaire (Computer Sciences in Secondary Education), INRDP, Service des Etudes et Recherches Pédagogiques, Section Informatique et Enseignement, 91, av. Ledru-Rollin, 75011 Paris.

2) LSE = "Langage Spécialisé d'Enseignement" (Specialised Teaching Language) drawn up by the team under Pr. Hebenstreit at the Ecole Supérieure d'Electricité in Paris.

consultation between pupils and teachers. There are real difficulties involved in setting up and operating such clubs, but their causes and remedies need not be discussed here. However, those who have observed and those who are responsible for this experiment feel that this is probably a desirable trend.

c) The main difficulty in introducing teaching of this kind is, once again, that the role of the teacher is extremely important and completely altered, and is one that his initial training did not prepare him for (which is hardly surprising given that the increase in the use of computers is, generally speaking, a recent phenomenon).

Furthermore, the shortcomings of teacher training in computer sciences in its present form concern not only quantity (approximately one teacher out of ten applicants receives training) but also quality. The training concerns only computer sciences, but these teachers ought to undergo continuous retraining in the teaching of their subjects, and also further training in psychology and pedagogy: basic training allowing them, in particular, to gain a better understanding of the various forms of behaviour and types of aptitude that computers can generate on the part of the pupil, and training enabling them to test and evaluate their programs.

Lastly, if one compares the basic options offered by the three experiments described, it becomes apparent that the first two consist of constructing perfectly constituted teaching units and delivering them to the teacher "ready for use", whereas the third experiment gives priority to local production of "pedagogic software". In this respect it is comparable to current practice in the United Kingdom where the manufacture of teaching instruments at local level is becoming widespread.

There can be no best choice between these two alternatives, other than that which has to be inferred from certain political decisions taken at national level. In any case, the problem is not to choose between two alternatives since they do not exclude one another - quite the contrary. An educational system is bound to benefit from the complementary virtues of teaching techniques that are both locally and centrally produced.

CONCLUSION

There is no such thing as a teacher who is merely a user of new teaching techniques. Moreover, there cannot be because, even if his participation in the formulation of new techniques is minimal, he cannot use them without constantly evaluating them and thus assuming the roles of evaluator and group leader which are new to him.

In addition, present experiments tend to show that teachers who use new techniques to an increasing extent become their testers and even designers.

It is therefore apparent that the more a teacher contributes to the preparation of new techniques, the more his old responsibilities change and the more he has to assume roles that are completely new to him - those of research worker and tester. Consequently, the higher up the role hierarchy the teacher moves - user, tester, designer - the more the inadequacy of his initial training and the almost complete absence of any real continuous training is felt to be a problem.

In addition, the use of new techniques often necessitates substantial modifications to school buildings, timetables, the notion of the class-group, authority inside the school, etc. Whence the many difficulties encountered by teachers who use these new techniques, the reticence of teachers who do not use them and the reluctance of academic institutions at all levels to use them more widely - reluctance which is sometimes quite wrongly backed up by arguments which cast doubt on the advantages of these new techniques from the teaching angle.

In conclusion, it has to be recognised that the introduction of new teaching techniques is essential as a means of responding to pupils' new demands and, more generally, to the trend in the role of educational institutions. It must also be realised that it is mainly because the introduction of new teaching techniques involves considerable changes in the roles of teachers, pupils, educational institutions and the school environment (above all parents) - all changes for which the individuals and institutions concerned are inadequately prepared - that these teaching techniques are not always given the encouragement they should and could be given by the different national and international education authorities.

Part Six

TEACHERS AND SCHOOL BUILDING(*)

by

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*) The present paper represents the contribution of the OECD Programme on Educational Building (PEB) to the Conference on Teacher Policies, organised in November 1974, under the Education Committee's programme.

AUTHOR'S NOTE

Keeping within the mandate given me for this paper, I have made no attempt to deal with the broad issues of Educational Change in our time and the ways in which school building can be made to relate to it; this is done under various PEB activities. Neither have I tried to define the role of teachers in educational change; this is done under the Teacher Policies activity as part of the Education Committee Programme. Nor have I discussed the implications for school building of new patterns of teacher tasks.

The broad title of this paper - Teachers and School Building - has been used merely for the sake of convenience and is interpreted chiefly as referring to teacher use of and teacher participation in school building. Though an attempt has been made to consider teacher participation in relation to that of other interested parties, the emphasis has necessarily been on the teachers.

A great deal of literature exists on the subject of teacher tasks and on that of school building, of which, understandably, I am familiar with only a small part. On the theme of this paper, in contrast, comparatively little appears to have been written which may help to explain the paper's preliminary and tentative nature. If, nevertheless, it has some measure of success in treating the point at issue, this is due to the generous contributions made by many people with wide experience in the field.

During this past decade I have had the privilege of meeting these people, visiting schools and discussing the related problems in many countries. Some of those who have contributed most to my understanding of the problems on hand, were kind enough to read and comment on a first version of the paper, which as a result of their comments has changed substantially. I should like to express my gratitude to them, collectively, for their help and hope that this final version does some justice to their efforts.

INTRODUCTION

In recent years the school building has taken on greater educational importance. From having been "an envelope, the passive setting for education, now the schoolhouse is becoming a tool, a series of environmental and communication services which are actively involved in instruction".(1) It has been realised that school buildings which used to be hard shells around activities of a fixed and stable character can become instruments with which to change this character and even to keep it changing and flexible. This may be true not only of new, more or less custom-made buildings but also of the existing stock, which may prove more flexible than was thought possible.

At the same time, however, and paradoxically, school buildings seem to be losing importance to the point of losing their distinctive character, or even of becoming obsolete. Today, much of education takes place outside schools. Advocates of "deschooling" want to do away with school buildings, and proponents of new and advanced communication media argue that the transmission of knowledge is independent of a specific building. This might eventually lead to dealing with a physical environment for learning regardless of context - the home (with the help of media), a library, buildings of varying kinds (warehouses, factories, office buildings, etc.) sometimes referred to as "found space", "schools without walls", "non-school schools", as well as traditional school buildings. Understandably, this very wide concept is too new and too complicated to be dealt with throughout the present chapter which focuses essentially on convential types of building. It is hoped nevertheless that some of the arguments put forward can also be applied to the design and use of learning environments of a less conventional character.

Teacher roles and tasks are changing in somewhat parallel ways, and they are also contradictory. Teachers are no longer expected just to follow traditional patterns but to subject their own teaching patterns to criticism in relation to new objectives for the school and participate in creating new patterns in order to come closer to the achievement of these objectives. In doing so, they will probably have to plan, even perform, their teacher tasks as members of teams, where they will exercise their professional skills as teachers together with colleagues and people with

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1) Jonathan King, quoted in B. Rodhe, "A Two-Way Open School", Prospects, UNESCO, Vol. II, No. 1, Spring 1972.

other professional skills. Thus their work seems to grow in importance. At the same time, however, they may feel that it is losing importance, since they are no longer autonomous as they were in their self-contained classrooms, and that as team members they have lost independence. Also, in the school of today the staff will comprise specialists other than teachers and the pupils will learn lessons outside school which can only be learned in society at large; one talks increasingly about the parallel school. In addition, teachers do not alone decide about education; national and local politics play an important role and both parents and pupils also want their say. Even in their teaching, individual teachers may feel that they are robbed of their distinctive professional task, as more and more media are employed and supply the information which, earlier, the teacher alone provided.

Several of the trends outlined above may sometimes appear as and be treated as ends in themselves: educational media, open-plan schools, team teaching, community schools, etc. They arouse a good deal of immediate interest but may be passing fads, to be succeeded by others. Yet they intend to be and should be instruments for achieving the overriding objectives of a new education, provided they are planned as part of a global strategy.

The term "new educational objectives" is here used in its widest sense. Education is increasingly becoming a very comprehensive concept. The use of the school building as an educational tool, therefore, could and should concern such aspects as:

- adaptation of the physical facilities in order to create new teaching and learning situations in relation to new objectives (individualisation, social education, etc.), including the use of new media;
- transformation of the general atmosphere of the school building with a view to attaining better and more friendly working and living conditions, including a change in furnishing and equipment;
- use of the school building for general community needs; the integration of the school building in community building for general cultural and/or leisure purposes (regard for the needs of adult learners should be an important and specific part of this aspect);
- readiness to use physical facilities other than the school building for teaching and learning purposes, as a substitute ("found space") or as major supplements ("schools without walls").

The definition of overriding educational objectives is the outcome of broad political and social opinion, and lies within the sphere of policy-makers rather than of teachers. Increasingly, educational change is seen as both the product and creator of social change. This must be kept in mind as the opportunities for the teachers to influence school buildings and use them for achieving educational objectives are dealt with in more detail. Yet the widening of the concept of school building as described above fits well into the general change in the pattern of teacher tasks, characterised as "... the passage from a certain level of craftsmanship tc that of a more rational organisation of the educational environment, based on the mobilisation of a variety of human and material resources."(1)

Enlarging upon these general concepts the following topics are dealt with in this leaflet:

i) teacher participation in the adaptation of existing buildings for the realisation of new educational objectives (Section A);
ii) teachers as active members of teams for the planning and use of new building:
   a) the briefing and design stages (Section B);
   b) furniture and equipment (Section C);
   c) initiation in use and continuous planning (Section D).
iii) teacher participation in school building research and development work (Section E);
iv) training the users of school buildings, initial and further training of teachers (Section F).

Finally, a summary of conclusions is given in Section G.

A. USE AND ADAPTATION OF EXISTING BUILDINGS

At the beginning of the school year 1974-75 a Director of Education wrote a circular letter to the teachers in his county on the subject of whether enough resources were available for their work. This is what he wrote about school buildings: "The school building represents a potential, but also a constraint to the fulfilment of today's educational tasks. Staff in many schools have experienced during these last years, however, that their own school facilities could be used in ways which they themselves had not realised before. The adoption of a less traditional view of the

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1) Teacher Policies - General Report of the Conference, OECD, Paris 1976.

size of groups for learning and activities increases the need for rooms smaller and larger than that of the standard classroom of $60m^2$. Perhaps we will make the school building the theme of one of our common days of planning. If, following thorough deliberations of needs and possibilities, you arrive at well founded proposals for changes in the buildings, these will often find a positive response from the decision-making authorities. In the years ahead, we may see more of rebuilding and less of new building within the educational sector of society."(1)

The existing stock of buildings - this is where it all starts. "First we shape the building, then the building shapes us." These oft-quoted words by Winston Churchill are indeed applicable to school buildings. Probably the majority of teachers in most Member countries take it for granted that teaching has to take place in standard-size classrooms, which make up the bulk of the facilities of a school. This is the kind of building they were shaped by, as schoolchildren and in their teacher training. But who shaped this kind of building? There are variations of the history of school building, but one fairly common version goes like this: "What we have, in fact, is a 170-year model with a fitful history. In 1806, the English Lancastrian system of batch-process education was introduced in America. The first fully graded public school was introduced in Boston in 1848 with the Quincy Grammar School, a school still in use. A batch of students, fastened to a teacher, in a box, established itself as the norm for the next hundred years.... Ask almost any child to draw a plan of a school and he will draw a large box around a series of smaller, equal-sized boxes, set side by side."(2)

One could, of course, go further back than this. In the beginning was the one-room school (or, in a mild climate, the tree under which the teacher assembled his flock). Basically, the modern school is still a multiplication of one-room schools, placed along corridors, possibly also heaped upon one another in two or more storeys. Gradually some specialised facilities were added: the gymnasium, the laboratory, the rooms for administration and staff, possibly workshops and studios, a library. But the core is still the classroom, which in the beginning was the one-room school. Together these boxlike classrooms form the "egg-crate" school, to change the metaphor - but they remain the "little boxes all the same",

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1) Oddvar Vormeland to the teachers in the County of Oslo and Akershus, Norway, August 1974.

2) High School: The Process and the Place, Educational Facilities Laboratories (EFL), New York, 1972, page 11.

as in the popular song. Certainly, for a long time the "egg-crate" school offered quite adequate physical facilities for school systems which wanted to sort children according to age, grade and ability into equal-sized groups in buildings assigned for various purposes, such as primary or secondary schools, or schools which were to give a general or a more specialised, possibly vocation-oriented education. To quote again from the EFL publication, referred to above: "For a long time, the repetition of the boxes was not without logic. Their uniform size spaces provided an efficient way of sorting people into uniform size groups according to age, grade, or some other fixed criteria. A group of 25-30 pupils constituted a class. The entire class was instructed in the same way by an omniscient lady deemed to be uniformly able in all subjects. She talked while the children sat and listened. And under the circumstances, the physical arrangements were functional."(1)

This is no longer true. School systems are being reformed and new educational programmes developed. New media are at hand. But school buildings remain the same, and even new buildings modelled on the old pattern are added to the existing stock. At the same time, schools of new types are being built, more or less carefully designed to serve new programmes.

The present section will deal with existing school buildings designed to serve educational programmes now abandoned. This is not to say that buildings of the old type cannot be made to serve new programmes. Still less can it be said that there is only one kind of building capable of supplanting the old "egg-crate" school. But the arguments will be based on the assumption that the traditional school, used in the traditional way, impedes the realisation of new educational objectives, such as the democratisation and individualisation of education. The traditional building is not neutral. The building shapes us, it shapes the education which goes on in it and many educators seem unaware of this fact. Not all, of course. This was shown by a survey carried out in the United States, in which it was reported that "almost a third of the schools say they have been substantially constrained during the past five years in designing new educational programmes by limitations in their physical facilities".(2)

A third of the schools in 45 large cities in the United States complained - but still only a third. The remaining two-thirds were also challenged to create new educational programmes in order to

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1) High School: the Process and the Place, op. cit. p.11.

2) A Profile of the Large City High School (Survey of 700 high schools in the 45 largest cities), National Association of Secondary School Principals (NASSP), November 1970, quoted on page 12 of the EFL report referred to earlier.

realise new objectives. One does not know, of course, how many schools are housed in buildings designed for new educational functions. But one cannot help suspecting that quite a few of the two-thirds of the schools which did not say they were constrained by limitations in physical facilities are housed in old buildings but have not really tried to carry out new programmes in them. The buildings shaped them and they may not even have noticed. Traditionally, teachers are used to viewing their job in education as a personal teacher/pupil or teacher/class relationship. Beside this their main concern has been with subject content, although gradually methods of transmitting content to pupils and training skills have also become objects of serious consideration. Until lately it has been taken for granted that schools are organised in grades and classes allotted to classrooms (or possibly subject-oriented rooms). Questioning of the traditional organisation is fairly recent, and usually only then does the teacher become aware of space, not as a neutral and self-evident factor but an asset or a liability for the work he wants to do. Thus, a prerequisite to a more active relationship between teacher and physical environment is the active relationship between teacher and educational objectives. Some teachers have not even discovered that the school building could be a constraint. Still less have they started to find out how it could be made a help.

This, of course, could reveal a fundamental resistance to any kind of educational change. There are also, at the other extreme, those to whom education in present-day society is all wrong anyway, since society is all wrong, so why bother to change school buildings? But the concern here is with teachers who start to use new methods or even to develop their own (as individuals or, more often, in teams) and who experience the shape of the building as a constraint. In this situation teachers react in different ways. Some of the attitudes they may reveal are the following:

- Quite a few teachers would like to try new teaching methods, new media, but soon find out that the building is a handicap. They need more space for group work or project work than the classroom provides; no manual work can be done except in specialised rooms, open only to specialised teachers; the music instruments are all in the music studio and the paints and clay in the arts studio. Classroom dorrs open only into corridors; books and projectors have to be carried a long way. There is one type of teacher who, before he has discovered more than a few of all the physical constraints that the building and the placing of equipment

and the lack of suitable equipment puts in his way, has resigned himself to not trying, and to going on doing things the way he has always done. Nobody is there to encourage him, to suggest alternative ways of using equipment or furniture. He will be the teacher who will say for a long time to come: "If only I had been given the possibilities others had, a different building, new equipment or whatever, I would have started something new". This of course, could be a way of hiding a fundamental resistance to change, but the teacher in this case has had, at least at some point, a sincere desire to try something new. But too soon he will have given up and developed a resigned attitude.

- His bolder colleagues may find it more difficult to resign themselves to passivity. But they tend to adopt what in the report on the 1973 PEB Symposium is called "the additive attitude to space", meaning that "...any new activity requires new space and facilities to be added to the old".(1) They will issue an ultimatum to their superiors: if they get the use of one more room or are given a better laboratory or a workshop or a resource centre or...they will work in a different way and begin to fulfil new educational objectives. This may be the voice not only of individual teachers but of associations of science, arts or language teachers or even of heads of schools, who can - all of them - think only in terms of renewal through addition to what they already have. Of course, they may be right. But in other cases, it would have been possible, with imaginative thinking and action, to adapt existing facilities for new purposes - without additions. Often what was needed may well have been contact with experts in building and design, but authorities made no effort to provide such help. All too often, then, even the more active teachers, even the profession as such, join the resigned group.
- However there are also many examples of teachers, of small groups of teachers or staffs of schools, who, with or without the encouragement and assistance of the responsible authority, bear witness to an imaginative, even creative attitude. They develop constructive solutions to the problems posed by the physical facilities in which they have to work.

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1) Eric Pearson: School Building and Educational Change, OECD, Paris, 1975, page 46.

There are many examples of how, in England, efforts to create new educational programmes have led to constructive changes in the utilisation of old buildings. In his book, Trends in School Design, Eric Pearson tells the story of what happened about two decades ago in Oxfordshire. "In the middle 1950s, as the emphasis in education moved from teaching to learning, there began a movement to establish local groups of primary teachers to discuss their objectives and to exchange experiences about new methods of working. It started with informal meetings, arranged by the authority's officer and adviser for primary education. These were warmly welcomed by teachers, working in an area where it is easy to feel isolated from the main stream of events. Other educational officers and advisers joined in, and visits were exchanged between one school and another. Ideas spread as teachers made bold experiments in creating a new kind of learning environment within their old buildings. At the same time the authority wished to carry out modest improvements to old school buildings, which they were able to discuss with the teachers, and were experimenting with a new kind of furniture. The raising of standards of work also came under discussion, and conscious efforts were made to improve the quality of aesthetic experience for the children, by exposing them to good design and fine craftsmanship in many and varied forms. The response of the children was tremendous and their work blossomed. As a result, the county nurtured a breed of teachers who were not only receptive to new ideas, but who initiated and developed them. Many architects were inspired by the vitality of the work in the schools."(1)

As an example of what could happen, the Brize Norton village school, "a lofty stone building with heavy mullioned windows, erected in 1871", is described as follows: "... a large window was lowered to the ground level to give access to an outside working area, and a partition wall was removed. Part of the ceiling was lowered to reduce the scale of the interior. The installation of a cooking stove and a sink, the building of some low wall seating and wall storage, and the provision of new tables, chairs and mobile storage units by the local authority, all assisted in the transformation. The headmaster created a sitting-room by building a light partition and bringing in a sofa, a rug and a low table.

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1) Eric Pearson, Trends in School Design, Macmillan, London, 1972, page 27.

See also S.C. Mason: In Our Experience, The Changing Schools of Leicestershire. Longman, London, 1970, page 10, et seq.

An excellent library space was formed similarly. The outcome was a fluid arrangement of learning areas offering a variety of educational experience for the forty to fifty children in attendance. At the same time, improvements were made to the kitchen, cloakroom and sanitary facilities."(1)

Somewhat similar yet very different examples from small village schools in the United States e.g. in Vermont, Pennsylvania, could also be quoted. In these villages "the little red school house" still exists, but thanks to the potentialities of modern technology the children are offered opportunities similar to those which a larger school in a city might have provided. Electronic communication has proved to be a substitute for additions to the school house. Thous far off in a small Vermont village, these children really grow up in the computer age with a mini-terminal in their school and get used to advanced techniques open to few of their city peers in their own country or in others. The one-room schools are also considered as being "without walls", as the possibilities offered by society at large are extensively exploited.

Several basic goals have been identified within the so-called NASSP Model Schools Project in the United States. Examples are: to create and provide varied strategies and environments to match individual differences among learners and among teachers; to define teacher roles (as distinct from aides and others) more sharply and to change the principal's role to one of participant in educational improvement work, leaving management functions to others; to sort out essential learning objectives for pupils and to reduce what is required, thus allowing pupils more opportunities for pursuing their own interests; and to develop better methods of evaluation.

Among possible means for achieving these goals and for procuring the necessary resources, the leaders of the project, J. Lloyd Trump and William Georgiades, propose new ways of using facilities: "Reduce overcrowding by introducing more independent study, large-group instruction (presentations), and small-group discussion.

i) Remove a wall between two classrooms and substitute chairs for school desks (arranged in semi-circular fashion to face the presenter now stationed in the front, on the window side now covered by a curtain or green paint); this facility houses twice as many pupils as in conventional classrooms.

ii) Install two partitions in a conventional classroom to produce 3 small-group discussion rooms, substituting chairs in a small circle for school desks; this arrangement accommodates 50 per cent more pupils in the same space.

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1) Pearson, Trends in School Design, op. cit. For a more detailed description of how, in the English primary school, teachers changed the physical environment, see page 29 et seq.

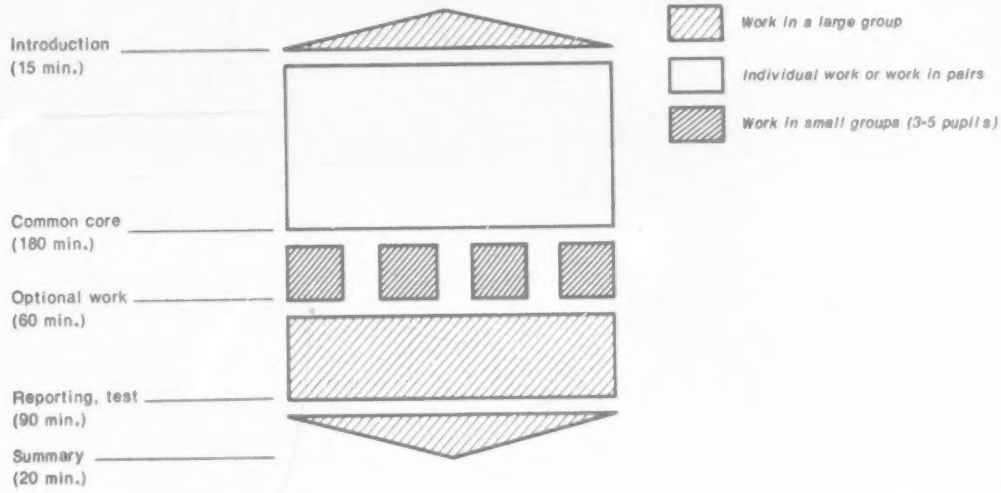
iii) Change classrooms into study and work centres for independent study; schedule more pupils for some supervised study and work in the community, with appropriate arrangements for accountability.

iv) Convert corridor, lobby, and cafeteria spaces into independent study areas; pupils can walk through such areas while other pupils are working, especially under flexible and individualised schedule arrangements."(1)

In Sweden, as the new 9-year comprehensive basic school, grundskola, brought together pupils of widely varying interests and intellectual ability in heterogeneous, unstreamed classes, teachers were advised to individualise instruction and at the same time provide social education. Different methods were tried out. In certain subjects, programmed material helped the individualisation process; mathematics was a case in point. Other subjects, such as science and social studies, proved more suitable for work in groups of flexible size, team work of teachers, varying activities and the use of a multi-media approach. As these various methods were tried out during the late 1960s the old school buildings often proved ill-suited to new demands.

Figure 1

DIAGRAMMATIC INTERPRETATION OF THE BRÄNNAN SCHOOL EDUCATIONAL MODEL



1) Anna Hyer and Robert McClure, "The Effect of Innovations on Staffing Patterns and Teacher Roles", New Patterns of Teacher Education and Tasks: Country Experience: United States, OECD, Paris, 1974.

See also J. Lloyd Trump, and William Georgiades, "Doing Better with What You Have: The Model School Project", The Bulletin of the National Association of Secondary School Principals, Vol. 54, No. 346, United States, May 1970.

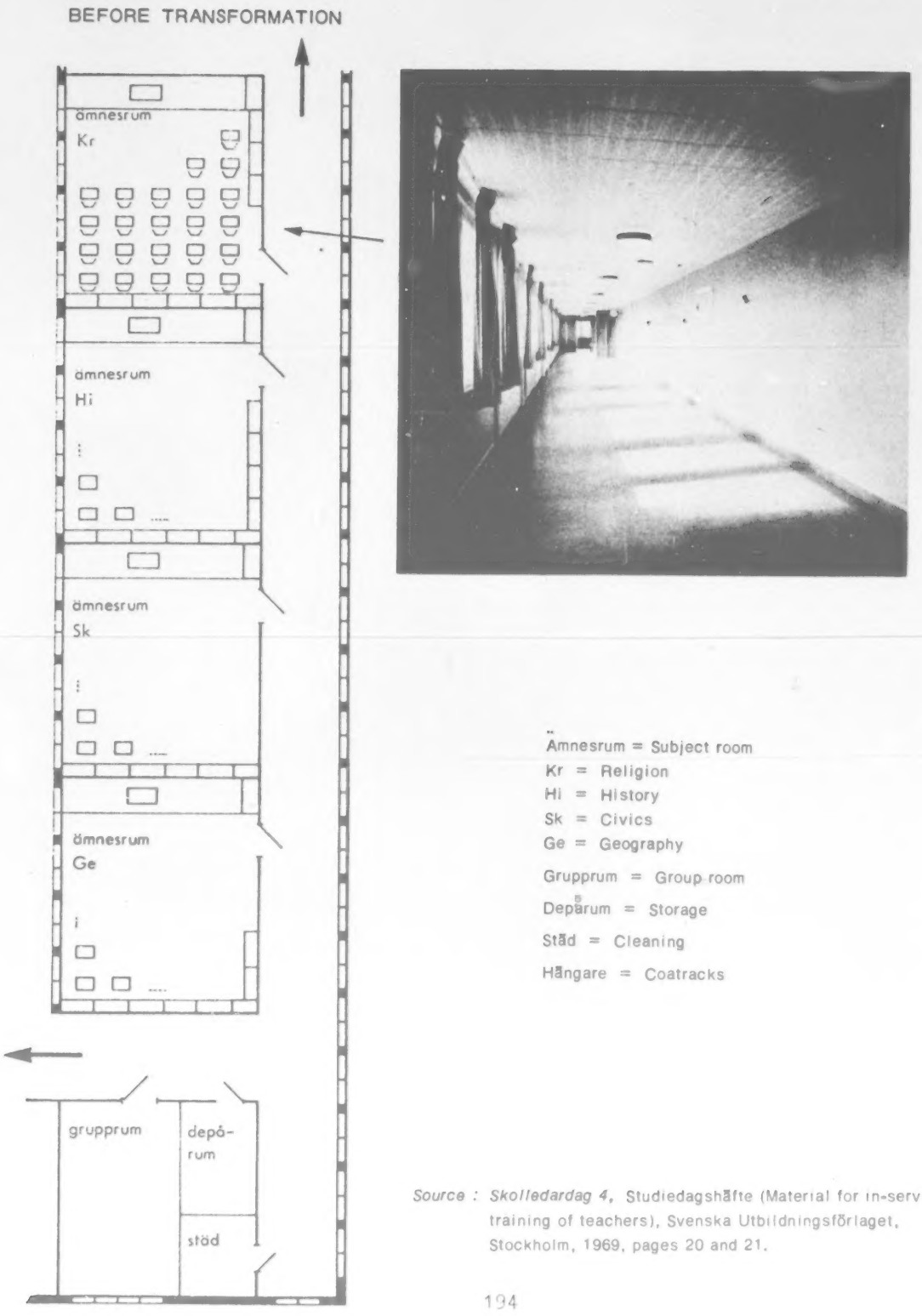
In the Brännan school, Skelleftea, an educational model for work in science and social studies was developed. Three teachers would work in a team with 90 pupils (three traditional classes), forming a "work-unit". The whole unit would receive introductury instruction for a project, then go on to study individually the common core material. All the pupils would then work on supplementary material, chosen by themselves according to interest, and the result of their work would then be reported by pupils or groups of pupils, after which the project would be summarised. This model would entail work in groups of varying size, in time spans of varying length. In order to be able to apply this model in what amounted to a traditional "egg-crate" school, the social studies area with rooms for history, geography, civics and religion but with no storage space for materials, no workplaces for teachers and no facilities for individual study by pupils, was transformed. One room was adapted to a study workshop for teachers with storage facilities for books and other materials. Three rooms were furnished with tables for group work and places for individual study. The corridor was equipped with workplaces along the windows. This arrangement had to be approved by the fire protection authorities, who also gave their permission for screens to be put up in the corridor to avoid excess noise. At the end of the corridor pupils were given an area for their own council activities.

In another instance the grundskola had to be housed in one of the large old brick buildings, built originally as a primary school. Existing facilities were found to be most inadequate for the needs of the last three years of the grundskola (age group 13 to 15, taught by subject teachers). An addition to the old building place had to be provided for science teaching. It proved possible to adapt a standard wooden hut containing three classrooms and corridor space to the needs of chemistry, physics and biology. Lack of accommodation for work in large groups was overcome by using a simple internal television installation, so that pupils in all three rooms could receive instruction at the same time, often as an introduction to work in smaller groups or independent study. For social studies, interdisciplinary work in groups of varying size had to be accommodated. A large corridor between four classrooms (storing materials for history, geography, civics and religion) was used for assembling a large group of 90 pupils. For work in small groups or individual work the classrooms and small areas between them proved adequate. Doors were kept open, and teachers and pupils could communicate and have access to material without disturbing one another unduly. In mathematics, teachers wanted to use programmed material for individualised instruction (the so-called IMU

Figure

FROM SUBJECT ROOMS FOR RELIGION, CIVICS, HISTOR

An Example Drawn From t



Ämnesrum = Subject room
Kr = Religion
Hi = History
Sk = Civics
Ge = Geography
Grupprum = Group room
Deparum = Storage
Städ = Cleaning
Hängare = Coatracks

Source : *Skolledardag 4,* Studiedagshäfte (Material for in-service training of teachers), Svenska Utbildningsförlaget, Stockholm, 1969, pages 20 and 21.

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ND GEOGRAPHY TO A DEPARTMENT FOR SOCIAL SCIENCES

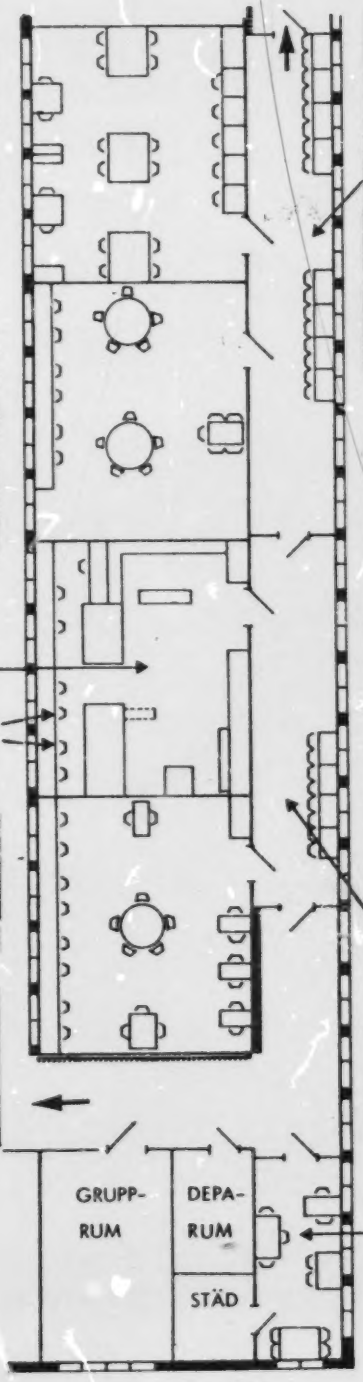
ännan School, Skellefteå, Sweden

AFTER TRANSFORMATION

In the department for social sciences a room in the middle of the corridor has been transformed into a "materials' bank" housing all the material formerly in the four subject rooms.

Work places for pupils have been provided in the corridor. To reduce the noise level, screening partitions were put up following consultation with the chief fire officer of the municipality who approved the proposed changes from the point of view both of fire protection and evacuation.

Work places for all teachers and teachers' assistants working in the Department have been provided in the new "materials' bank"



At the end of the corridor, a room has been created for the pupils' council and associations.

Figure 3

OLD FACILITIES ACCOMMODATED TO NEW WORKING METHODS

An Example Drawn from the Linné School, Malmö, Sweden

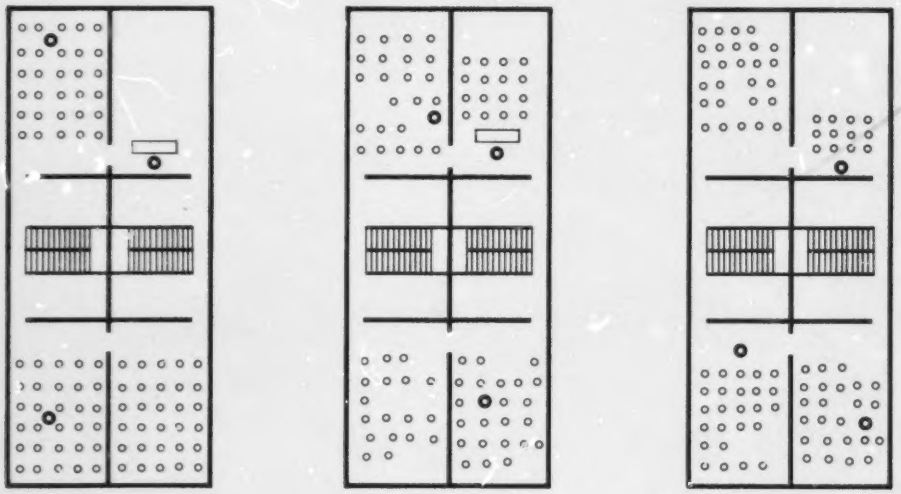
SOCIAL STUDIES

A CORRIDOR BECOMES
A LARGE CLASSROOM

ALL THE ROOMS ARE USED FOR
INDEPENDENT WORK AND GROUP
DISCUSSIONS

INDIVIDUALIZED INSTRUCTION IN MATHEMATICS (IMU)

(3 classes - 90 pupils, 2 teachers and a teaching assistant)



INDIVIDUALIZED
INSTRUCTION

DIAGNOSTIC
TESTING

GROUP
INSTRUCTION

Source : *Att bygga för framtidens skola*, en utställning om SAMSKAP, Skolkontoret Malmö, 1969.
Also in English : *Development in Building for the Changing School.*

material). Two teachers with the help of a teachers' assistant, would be in charge of 90 pupils who would work individually with the material. The assistant would be available at a fixed place in charge of the material, whereas the teachers would be moving around to help and direct children who asked for individual help, assemble small groups for tutoring, and evaluate and plan. As all walls in the old building were load-bearing and thus could not be removed in order to create a large room, the three mathematics classes were placed in adjacent classrooms. To facilitate communication, doors were made to open between these rooms. Further work on the possible adaptation of existing school buildings to meet the requirements of the new 1969 curriculum has been carried out under the sponsorship of Sweden's National Board of Education. This is the so-called LABB 14 - project.(1)

In a French secondary school (Collège d'enseignement secondaire - CES), housed in a fairly new but not very flexible building with much less extra space than was afforded by the old Swedish school building just described, the teachers have developed a programme offering the pupils a wider range of activities than those of a standard French CES. The mornings are dedicated to the core programme, in the afternoons pupils work in "ateliers", into which they split up according to taste and places available (from drawing to applied mathematics, or from scientific experiments to pottery). Space for this "atelier" work was found in all possible (and almost impossible) places in the building; classrooms and laboratories, corridors, basements and the school stores. Almost no "atelier" space was ideal for the purpose it was made to serve but the programme was made possible through the constructive spirit of the teachers. Work in the core subjects was also developed and classroom practice was changed primarily towards greater co-operation in groups and individualised instruction. A sequential model is mostly used: a collective phase is followed by a personalised phase of work (assimilation and production), in turn followed by what is called a "socialisation" phase, i.e. the presentation of the work to the group. This model has made it possible to arrange a traditional type classroom as a foreign languages room where differentiated corners have been created and equipped, the latter by ingenious use of salvaged material. As teachers have to collect and produce material as they go along, the need for storage of material and functional arrangements for documentation is acutely felt, but as yet not met.(2)

1) See Skolhus, Skolöverstyrelsen, Stockholm, Sweden, 1971/72, 2-3; 1971/72, 8,9-10; 1973, 3.

2) Jean Ader, Building Implications of the Multi-option School, OECD, Paris, 1975, paragraphs 19(c), 38, 84 and 88(c).

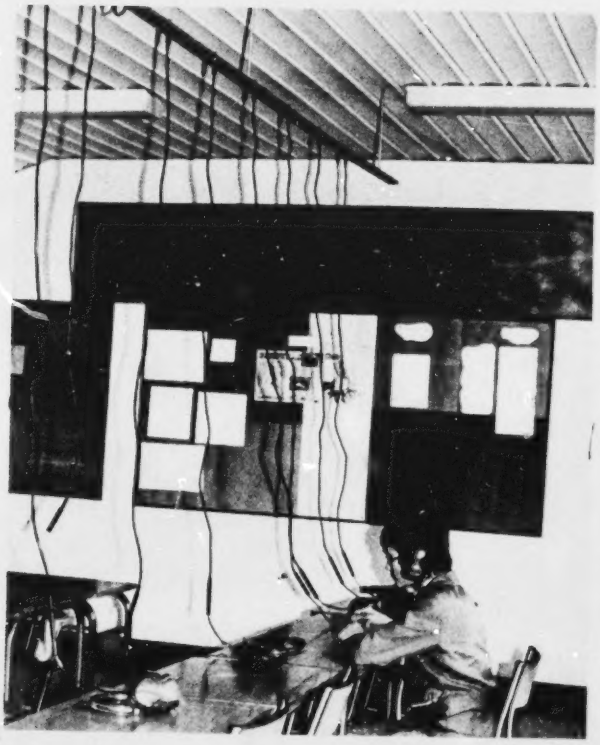


Figure 4

A traditional type class-room transformed into a foreign languages room.*

What then can be done to stimulate in teachers the kind of attitudes, the results of which we have seen in schools in the United Kingdom, the United States, Sweden and France? If one looks more closely at what brought these attitudes about, it is possible to discern somewhat the same pattern, though certainly with variations. Everywhere, and most of the time, there has been an interaction between teachers and local, regional and/or national bodies and officers. Heads of schools, of course, are of vital importance. As teachers try to do new things but feel inhibited by the physical environment and either give up or just demand more space, equipment or whatever, the head is often the person who has to stimulate a more constructive attitude - and show that he himself has one. He and his closest team of assistants (if he has any) are those most directly responsible for the physical facilities of the school and should be able to think in terms of re-arranging, regrouping, replacing. He is the person to know who, on his staff, has really got a constructive, even creative mind as to the use of facilities and equipment, and might use this beyond his own class-room or department. In the school of today, probably even more so in the school of tomorrow, teachers develop more and more profes-sional skills of varying kinds, which could be put to the service

* Collège de Sainte-Maure (France): photograph : Bertrand.

of all. This is a particular ability which should be encouraged, and which heads should be on the lookout for and help get training for.

With (or if needs be, even without) the help of such specialists the head of a school could start asking his teachers such questions as: what is it that you want to do, what kind of space, and how much do you need? what other characteristics do you expect from the space (accoustic or visual privacy or openness etc.)? what kind of equipment do you need - audio-visual, hardware and software, printed material, etc.? what can be found in school already - in other classrooms, other departments? what extras will the budget take? what is really indispensable? what can be disposed of to make room for things that are more urgently needed?

This kind of question could be multiplied and certainly formulated more precisely. The important thing is that such questions are asked and that attempts are made to answer them within the school itself, if possible. Only when all possibilities of the individual school have been truly exhausted should the school approach the local authorities - the School Board or whatever may be the appropriate source of authority and funding. It is important that local authorities should not respond to demands until they have made sure that the possibilities of the school have really been investigated, tried and exhausted. Even then it is important that they do not distribute their gifts as from above but that they work <u>with</u>, not only <u>for</u>, the teachers and other personnel in the individual school, or they will never encourage the kind of creativity which one would like to see growing, if possible, everywhere.

Many different people could be instrumental here. Advisors - either for different levels of education or for subject areas - could play an important part, as the Oxfordshire example, among others, shows. In Touraine (France) the regional inspector played a leading role in getting the whole process going. In Sweden interaction between local and national administration was important, though most of the initiative was really taken at local level.

A procedure which seems to have been rarely used but might have great potential would be to call in architects to discuss with teachers who have started to consider seriously how the physical facilities of their school could be used differently. This would apply not only in the case of major remodelling but also when remodelling might not be a viable alternative. Architects are trained to think in terms of space and its environmental qualities; teachers are not, but they are the people who know for what purpose they want to use the building. Team work between

architects, administrators and educationists is now becoming an increasingly common feature accompanying the development of new ideas and design solutions for new school building. More widespread adoption of this kind of team work, directed towards better and more imaginative use of existing facilities would be of great advantage to everybody concerned. (See also Section D).

Some interesting examples of how thiscan be done are to be found in the Educational Facilities Laboratories project: New Life for Old Schools. In several cases reported, groups of teachers, architects and administrators were called together for "charettes"(1) or workshops with the specific task of suggesting how one or more school buildings might be remodelled in order to serve new educational purposes. Teachers defined educational objectives and described how they wanted to work in order to realise these; administrators defined the economic and legal limitations, architects put forward the physical constraints of the building itself, and lively discussions followed. It was then up to the architects to work out design proposals incorporating the suggestions made by the teachers and administrators.

This is a paper about teachers and school building. Very little is therefore said about the role pupils could play in creating new ways of using existing buildings, or about contributions which other school personnel, and parents, too, could make. But it should be remembered that many constructive and creative ideas can emerge if such sources are also tapped.

B. NEW BUILDING - BRIEFING AND DESIGN STAGES

Three main parties are involved in briefing and design where schools, or indeed other buildings, are concerned:

- the decision-making authorities, usually the owner;
- the technical specialists (i.e. architects, technical consultants, educational administrators and advisors); and
- the users (teachers, pupils, parents, technical staff, etc.).

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1) See for example, Places and Things for Experimental Schools, EFL, New York, 1972, page 111: "The term 'charette' is borrowed from the architectural profession where it indicates an intensive effort to finish a project before a deadline. In school planning, it denotes a session of intensive group planning, with community representatives, school officials, teachers, students and designers each contributing and all working to resolve conflicting desires."

Traditionally the specialists have carried the main burden. They have formulated the brief, designed and constructed the school building. The role of the decision-maker has been to decide upon the framework, format and cost, often guided by nationally or regionally defined norms and regulations. The users have often been put in a "take it or leave it" position although a compulsory consultation procedure may sometimes exist.

This kind of process is now being challenged in many countries and in some instances virtually changed. Some of the many reasons for this are:

- the decision-maker has become more conscious of his task of defining and fulfilling societal objectives for education, and has gradually come to see school building as part of this process;
- a higher degree of cost-consciousness has emerged and partly as a consequence of this more severe claims are made for the building to meet the functions expected of it;
- the user has come to see the building less as something static and unchangeable and more as an instrument which can promote or hinder the achievement of educational objectives;
- it is becoming generally accepted that everybody is entitled to have a decisive influence on his working environment.

In view of this growing consciousness of the roles to be played by "owners" and "users" in school building, the "specialists" may want to object that:

- planning a building is becoming an increasingly sophisticated and complicated process;
- involving of the users (it would be harder to object to involving the decision-makers) would entail a probably very time-consuming democratic procedure, incalculable as to its results, hard to reconcile with efficient network planning and therefore, since time is money, also costly;
- it is hard to decide who should be identified as the users: teachers, certainly, but who represents the teachers; who are the other parties and who represents them? pupils, parents, other personnel, those who will use the building outside school hours, etc? These objections are to be taken seriously but the case for an active

involvement is so much stronger that they must be considered as practical difficulties to be overcome rather than barriers to the conscious and systematic development of new procedures in the planning of school building.

This paper is concerned mainly with the teachers. The roles of other parties will enter the picture chiefly as they relate to the role of the teachers. Nevertheless it should be kept in mind all along that what we are asking is not only for the monopoly monologue of the specialist to develop into a dialogue, but that forms should be found for something which might be called a "plurilogue", into which all parties concerned will have the chance of entering.

Briefing and design in school building may occur in varying circumstances. An example is the one and only new school that a certain community is going to build for a decade or more. The community might be willing to put a great deal of effort and interest into this unique event but would probably have very little experience to contribute; subsequently, the experience gained may not benefit many others. Even the architect may go on to quite different kinds of projects and be unable to put to direct use what he has learned from designing the school. On the other hand extensive building projects are undertaken by large education authorities, which would have to find ways of working out a prototype suitable to serial production of several similar or almost similar schools. It would be possible to put quite impressive resources into working out the prototype and to enlist extensive participation from the parties concerned, but it might not be possible for production of each individual school to be the object of such participation. An illustration of this on a large scale is the building programme of the so-called Mittelstufenzentren in Berlin, a programme for building 13 similar schools at a total cost of 620 million DM.(1) The experience drawn from this building programme can and will be put to use in the consecutive programme of building Oberstufenzentren, but it will be more difficult to correct mistakes within the respective programmes in the light of the experience gained.

The development projects in school building in the United Kingdom, with which the Development Group of the Architects and

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1) U.J. Kledzik (ed.): Gesamtschule auf dem Weg zur Regelschule: Bildungszentren in Berlin, Schroedel, Berlin 1974.

See also "Berufsfeldbezogene Oberstufenzentren: Konzeption und Planungsverfahren", Informationsdienst Schulwesen 1/74, Berlin.

Building Branch of the Department of Education and Science have been concerned, seem to represent yet another variety of school building planning. The Development Group has been working with local education authorities in designing individual schools, engaging both national and local experts and studying carefully the best educational practice available (see also page 204).

Research and development activities have played an important part in these projects, and a number of projects in the normal school building programme have been based, in principle if not in detail, on the development projects, both within the actual authority concerned and all over the country.(1)

The conditions under which teachers can participate in school building under such differing circumstances will vary greatly. Empirical approaches will have to be accepted and even encouraged. The nature of their participation will differ according to attitudes and traditions in individual countries. In discussing these conditions, the differences in the organisation of school building will be borne in mind but cannot be dealt with here. Despite these differences some basic prerequisites will doubtless still apply.

Today, it is recognised in most countries that teachers should have a say when new schools are to be built. This in itself may be nothing new or revolutionary. In some countries a formal pattern of consulting teachers has been in existence for some time. However, this has often happened only at the stage when the architect has completed his design. It is difficult for teachers to read the architectural plans and visualise what kind of a school will result. Yet a good deal has been achieved, even by observing such a pattern. Naturally, teachers are interested mainly in two sets of facilities: the rooms in which they will work and the staff rooms. They will ask: are there shelves for books and boards for display in the classrooms? are the outlets and sinks well placed in the laboratory? will the light be right in the studio? is there enough space in the staffroom? are there workplaces seperate from the social area? Many mistakes have been avoided, and teaching and learning conditions considerably bettered through this kind of procedure, which could and should be supplemented by consultation with other personnel, such as custodial and cleaning staff, school health officers, etc. Nevertheless, very often those involved in this type of process have come out of it rather dissatisfied,

1) See, for example, Building Bulletin 48, "Maiden Erlegh Secondary School", HMSO, London, 1973; and Information Leaflet N° 2,"Maiden Erlegh, An English Secondary School Development Project", by Clive Booth, Programme on Educational Building, OECD, Paris, May 1973.

since very little could be done at this late stage, when the main features of design were already settled and it was possible to make only minor alterations. Also there is the question, seldom answered satisfactorily, of who will represent the teachers. Some authorities are used to dealing with committees of teachers, presumably chosen by the teachers' unions. Gradually the members of these committees may develop a degree of expertise, but this does not mean that they would have much real influence. Nor would those who would actually be teaching in the new schools readily identify with them, their own representatives.

What one is generally talking about now, and asking for, is a very different kind of teacher involvement. It will have to start much earlier, already at the briefing stage, and aim at the continuous teamwork of all parties concerned. Several fundamental questions arise at this point:

- at what stages in the briefing and design process should teachers be involved?
- what is meant by teamwork in this context?
- what educationists should be included in the design team?

Stages of teacher involvement

As it is being realised that teachers ought to be brought in early in the planning process, the design specialists sometimes tend to limit this participation to the opening phase of the briefing stage. They could be brought in, in at least two ways. One would be to have the specialists find out what effective practising teachers are trying to do in existing schools. This method is widely practised in the United Kingdom both by the Department of Education and Science and local authorities in their development work. Obviously, someone has to decide who are the most effective teachers, and this, generally, the authorities take upon themselves to do. There are certain advantages in this system as members of the design team, some of whom may not have seen a school at work since their own school days, spend considerable time watching carefully what is done and discussing with teachers on the spot the teaching and learning methods used and the physical facilities needed to promote related activities. Architects, with their expertise in judging environmental qualities, might be better qualified than the teachers to assess what assets or liabilities the building has and what properties a new building should possess. Yet, this method of involving teachers seems to leave most of the initiative to the specialists and leave the teachers a rather

passive role. Though one would be glad to see it used more widely, there must also be other methods for making the teachers participate in stating their needs. Another way would be to ask them, as prospective users of the building-to-be, to take part in formulating "user requirements" to be incorporated in the architect's brief. The practice of including in this brief detailed requirements may vary from country to country possibly even from one building project to the next, but at least in some countries, and especially in development projects, a good deal of trouble is taken to specify user requirements in great detail. Thus, in the Metropolitan Toronto School Board Study of Educational Facilities groups of teachers were given the possibility of saying what they considered to be the best practice at the various levels of education, and in various subjects, as a basis for the development of the basic brief.(1) In the SAMSKAP project in Sweden, several groups and sub-groups of teachers were asked to analyse the curriculum of a centralised character in Sweden and to try to interpret it in terms of activities and also in terms of facilities needed.(2)

Such efforts at formulating requirements through user groups are of great importance, and in most countries would imply a considerable step forward in involving the teachers in the planning of school building. Yet a warning must be added against believing that a set of requirements can be defined once and for all, which the designer will then have to meet. In practice, design demands interpretation of requirements on many points of detail, and the decision on how to interpret them should not be left to the designer but should entail the continuous involvement of those who formulated them. In fact, the usual separation of the briefing and design stages may have to be seriously questioned, and possibly abandoned altogether. The designer may still want the users to express themselves in brief and unambiguous terms, and then to leave the scene until the building, or at least the design, is completed. But this is the opposite of the kind of teamwork advocated.

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1) See, for example, Educational Specifications and User Requirements for Intermediate Schools, SEF E2, Ryerson Press, Toronto, 1969.

2) Bertil Gran (Ed.), "The Open Plan Schools in the Malmö Region" (Stencil), Malmö, 1972.

Ader, op. cit., paragraphs 29 (Table 3B), 87, and page 37.

B. Rodhe and B. Gran (Eds.), "A Report on Experience in the Malmö Region" New Patterns of Teacher Education and Tasks, Country Experience: Sweden, OECD, Paris, 1974.

The Nature of teamwork

Teamwork should involve all the parties concerned throughout the briefing and design stages, or rather throughout the whole building process. All through this long period the nature of the teamwork will be changing, different team members will play the most important part in different phases, but what should be stressed is the desirability of continuous teamwork. This makes it important to try to analyse the nature of teamwork in this context. There is one type of so-called teamwork where each party defines and guards his own territory. Though the parties work alongside one another they never really enter into dialogue or co-operation. For example, the whole burden of interpretation of what teachers mean when talking in educational terms is put upon the architect, who, in his turn, confines himself to speaking in terms of space and environment. Likewise the administrator, the finance specialist, the technical consultant are confined to their respective territories, speaking their own more or less unintelligible language. On the other hand there is also the kind of teamwork in a no-man's-land where roles are mixed, architects talk education on the basis of the experience of their own or their children's childhood, whereas teachers try to express themselves in terms of space and even try to draw, in the literal sense, the consequences of their argument for the kind of school they would like to have.

In contrast to these conceptions of the nature of teamwork, it might be possible to lay down some criteria for genuine teamwork such as:

- everyone has his own special competence and responsibility, but decisions are taken together and after open discussions;
- members of the team are prepared, able and willing to discuss all problems with one another as they arise;
- a common language is gradually developed, each party taking care to make sure that he understands and is understood by the others.

Teamwork does not free the parties concerned from developing their own expertise or exercising their own competence. Rather, the presence of the other parties with their specific skills represents a continuous challenge to each. In the school building team:

- The owner/decision-maker has to define his needs precisely; he has also to set targets in terms of format, quality, time

and cost. He must choose the specialists who will do the actual work, and control proceedings with regards to time, cost and quality.

- The specialists, a complex group, are responsible for the development of the brief and design in a formal sense. The leader of the whole team may come from this group and may be an administrator, identical or not with the educationist, who will be responsible for involving the users in the teamwork. The architect and his team of technical consultants are responsible for the actual design, entailing the interpretation in environmental and spatial terms of the requirements of the users.
- The users will need to analyse and describe the activities which will take place in the school, the most important of these being learning and teaching. As these will by no means be the only activities to go on in the building, not teachers alone but also other users within or outside the school community will have to be involved and develop among themselves a sub-team to be incorporated within the larger team.
- It is essential that the decision-maker should define clearly the objectives and parameters of the project and that all team members should be clear about what they imply. In some countries, the practice is that innovative schools have to respect the same cost ceilings as traditional ones. In others this may be impossible; it is nevertheless important that those who bear the overriding political and financial responsibility should lay down the conditions for the work in advance while remaining, however, available for consultation throughout the process.

When the decisions are to be taken, and as they are to be taken in common, it is essential for each party to take his stand according to his own competence but at the same time to enter into the real give-and-take of the dialogue. This is how one architect describes what may happen: "The user is made aware of a problem which in the traditional process the specialist, the architect, would have resolved for himself. His decision would affect the use of the building intimately and the user would have risked being greatly dissatisfied. If made aware of the problem, of the conflicts it raises and of possible alternative compromises to overcome them, then, the user may see that he himself, by perhaps modifying his own activities, can solve the problem by removing it or by transferring or transforming it into different terms in such

a way that it can be solved by architectural means. Then again, when he sees how the architect's mind is working, he discovers new possibilities not previously imagined. This is how user and architect become involved in a creative dialogue, each stimulating the other."

The development of such a "creative dialogue" cannot possibly be limited to what is usually called the briefing stage. As said before, the briefing and design stages tend to merge. Only when the design is complete does the dialogue end, and only when the dialogue has ended can the brief be considered as complete. Furthermore there is a case for continuing the dialogue throughout the building process and letting it be followed by continuous co-operation of the parties involved, even after completion of the building, and on into its occupation as a school.

The concern here is mainly with such new school buildings which aim at realising new educational objectives. These in turn, are generally defined by policy-makers at a level higher than that of the building authority. It is necessary, therefore, to translate these educational objectives into functional and operational educational models. The specific task of the design team during the briefing and design stages would be to determine the facilities needed for their realisation. The extent to which the team would have such models at its disposal would vary. In some countries the task of translating objectives into educational models is performed mainly by central authorities in charge of curriculum development; these may also take the responsibility for establishing corresponding norms and guidelines for design. In others the main burden of this work may rest with the design team for the individual school, and the school building authority then has to ask the team to translate the educational model into physical facilities for that particular school. In between these extremes there are, of course, many variations. However, bearing in mind these differences, the operational and functional educational models would have to be defined at some level as a basis for determining the necessary facilities. In what terms should the model be described, or, in other words, what is the point of departure for the brief? The answer to this will define the task of the design team, and, more specifically the task of the teachers on the team.

This question was discussed at length in the PEB report on the Building Implications of the Multi-Option School (1) and an attempt was made to answer it. It is, the report maintains, the

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1) Ader, op. cit., paragraph 76 et seq.

activities to be performed in the school which constitute the key to briefing. But this key in itself calls for what the report describes as "a multi-dimensional analysis". An analysis of the complexity of activities must be made: as to their being observable, desirable or just possible; as to their characteristics, and as to the field to which they belong - school, social life and leisure, community use of the school building. This analysis of their nature, characteristics and value would result in a typology of activities. These might then also have to be arranged in sequence and sets. Only thus would it be possible to determine the type, or, rather, sets of facilities, which would correspond to the sets of activities agreed upon. The quantification of facilities would follow, taking into consideration norms, cost limits and other constraints (such as fire regulations). Even with such a long and careful process there can be no absolute certainty in the series of decisions which have to be taken to complete the briefing and design stages and build the school. In some sense, the design of a school building must remain "an open task" and allow for "a certain indetermination" which should "not be confused with hazardous approximation".(1)

Teachers will obviously have to be involved throughout the process outlined above. It is not possible to divide this process into different stages, for example one in which teachers describe their requirements in terms of activities resulting from an educational model, and one in which architects translate these into physical facilities. The process will have to be carried out by means of constant dialogue between team members. The teachers engaged in the team would have to describe teaching practice in terms of activities and undertake the kind of multi-dimensional analysis referred to above. Those teachers who have themselves played an active role in changing their own physical environment in existing buildings would probably be those best suited for this task. In developing and trying out new educational models they would often almost literally, have knocked their heads against walls, and may have contributed to walls having been moved or removed. It was presumably teachers with this kind of experience who were asked to join the SEF and SAMSKAP teams mentioned earlier. When the design team responsible for working out the prototype for the Berlin Mittelstufenzentrum(2) was set up, only teachers from Gesamtschulen, active in trying out new educational models, were chosen. On the whole, the kind of teamwork outlined in this

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1) Ader, op. cit., paragraphs 108 and 114 et seq.

2) Kledzik (Ed.) op. cit., page 112 et passim.

paper can only apply to development projects or large building programmes. However, in the case of the building of an individual school too, the innovative experience of teachers would be well worth taking into consideration. In Oxfordshire the new primary schools grew out of the kind of educational renewal described in Section A. The Touraine teachers, also, knew well what kind of a school they would build were they given the opportunity to participate in the planning of a new school.

A warning should be added here. Conclusions have sometimes been drawn too simply and too hastily from teachers' analysis of their educational model. Architects may be misled into following too closely the ideas put forward by teachers and as a result the matching of facilities with activities may become too simplistic. The following conclusions can thus be drawn:

- The design of a school should not be based on one educational model only. As far as possible the provisional design should be tested against alternative educational models to assess its flexibility. This conclusion is based on the experience that buildings constructed to conform very closely to one specific educational model are the most difficult to adapt to the use of other models.
- The whole theory and practice of translating educational objectives via educational models into facilities needs to be developed. This is an important field for research and development. An international organisation could play an important and, possibly, a unique part here by bringing together experience from different countries and identifying the really relevant issues, putting aside factors of a purely national character.
- The possibility of applying alternative educational models in a school building raises the whole issue of flexibility and adaptability, which is the object of still another PEB activity.(1) The initial findings of this work indicate that school buildings under certain conditions, may house more alternatives than is generally thought.

Educationists in the design team

The educationist in the design team was once defined as "someone who is familiar with the broad strategies and objectives

1) Providing for Future Change, Adaptability and Flexibility in School Building, OECD, Paris, 1976.

of educational development but who, at the same time, is familiar with the daily problems of practical teaching and with any current innovations which attempt to solve them".(1) This definition has been contested, it being argued that it cannot be "within the capacity of one person to perform fully and efficiently the tasks which have been expected of the educationist of the past. Continuous tapping of the well of experience in the shape of those teachers at the spearhead of educational innovation is now essential to the work of design teams." But "these people work largely by intuition, are not always articulate and are sometimes to be found in obscure places". A plea is made for educational building "to construct its own special bridges linking it with the teaching profession to make the briefing dialogue more fruitful than hitherto. Design teams need to be seen in touch with the practice of teaching at the frontiers of education."(2)

It seems possible to reconcile these views. Granted that several people will be needed to represent "the well of experience" to be tapped, there is still need and room for the educationist who is familiar both with broad strategies and objectives and practical problems and innovations. He will usually belong to the group of specialists and he will have to act as a co-ordinator vis-à-vis the representatives of the users. To this person belongs the task of locating "the frontiers of education" and finding the people who work there. He may be the educationist/administrator and, probably, will also be the person responsible to the decision-makers for organising and maintaining satisfactory relations with the teaching profession. This task will not always be without its complications.

How then are the teachers who are to serve on the design team to be nominated? Most school building authorities will reserve to themselves the right to define "the frontiers of education" and to seek out the teachers who would seem to work at these frontiers and be of most use on the design teams. They will also have to reserve to themselves the responsibility of weighing the claims put forward by teachers against those made by other users of the building, claims which might be defined in terms of wider societal goals than educational ones.

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1) Guy Oddie, Development and Economy in School Building, OECD, Paris, 1968, page 13.

2) Eric Pearson, School Building and Educational Change, op. cit.

At the same time the teachers' unions are putting forward claims to be consulted. A recent publication by the National Union of Teachers in Great Britain(1) recommends that "local education authorities should take their teachers into the fullest consultation from the very beginning, and should make every effort to achieve a solution that is completely acceptable to their teachers. In this, as in other cases, the executive interprets consultation as an on-going dialogue between the authority and the representatives of the teachers' professional associations. It rejects as unacceptable the calling together of an unrepresentative collection of teachers on an ad hoc basis. It also rejects the practice of interpreting consultation as a mere matter of allowing heads or others a sight of already formulated proposals and finalised drawings." Although there are examples of schools in the United Kingdom which have been designed by local education authority architects in close consultation with teachers, a survey of current practice, reported in the above publication, seems to indicate that the recommended type of consultation is still very infrequent and that, many schools are still built without teachers being consulted.(2)

In Sweden, similar claims from unions are substantiated by the existence on the labour market of a general agreement on the creation of what might be translated as "joint consultative committees" (Företagsnämnder). Under this agreement all personnel are granted the right to exert influence on their working environment. In accordance with it, a Swedish local authority recognised a school building committee, elected by the joint consultative committee, as a partner to be consulted on all projects of school building.(3) The authority (in co-operation with the city's Central Building Council) appoints the actual design team which consists mostly of specialists but also includes some teachers, chosen by the authority itself. The design team continuously forwards its proposals to the school building committee, which can discuss the emerging design both in its totality and in detail. As the joint consultative committee includes representatives of all school personnel, the school building committee elected by it also has

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1) Open Planning, A Report with Special Reference to Primary Schools, a NUT discussion paper, NUT, Hamilton House, London, 1974.

2) Ibid, page 14.

3) The procedure was developed in Malmö as a means of handling the conflict which had arisen with the teachers' unions over the building of open-plan schools within SAMSKAP. Local representatives had published a study called SAMSKAP - projekt med manga frågetecken (SAMSKAP - a project with many question marks), Stencil, Malmö, 1972, in which the need for school buildings of new types was recognised but the layout of the schools built so far questioned.

wide representation, and this committee becomes the potential forum for the kind of "plurilogue" referred to above. Though at first each member tended to represent only his own group and its interests, a team spirit has evolved in the committee as each learns from the other and all learn from the design team, which in its turn learns from the committee. Thus the total environment of the future building becomes the concern of the whole group, which then becomes a constructive partner in the development of the design and in the actual building of the school. Owing to the fact that the school building committee is constituted under the agreement on joint consultative committees, the inclusion of parents and pupils is not possible. However, parents have constituted a school building committee of their own, which is in contact with that of the school personnel. Contact with pupils and their organisations is secured in other ways.

Any union with representatives in design teams risks - if it considers it to be a risk - their representatives identifying themselves with what may become an "in-group". To counteract such a process unions may instruct their representatives to take each issue back to their responsible committee, a procedure which would tend to become slow and inefficient and endanger all real teamwork. This might lead authorities to adopt a somewhat different policy towards consulting unions. They may ask them to appoint reference groups linked to the design team or to single members so that the results of the work of the teams can always be checked against the opinion of elected teacher representatives. In the case of the design of the Berlin Mittelstufenzentren a most comprehensive reference committee was appointed with representatives not only of teachers' unions but also of the administration (Senatsverwaltung), the universities, staff and pupils in existing Gesamtschulen, etc. This committee started its work by defining the conditions of the competition before the architects were appointed and the actual design committee began to work, but their function as a reference group was maintained throughout the building process.

In years to come, building authorities will probably find themselves caught up in the dilemma of the demand for democratic procedures as against their own desire for maintaining autonomy of decision. Few authorities will enter into conflict with the elected representatives of their teachers with their eyes open. They also have to consider the demands of groups in their service other than teachers and, above all, ensure that the overriding educational and societal objectives which the schools are to serve, are met. Possibly, all partners concerned will recognise what these overriding objectives are and that they may not best be realised by a

kind of continuous consensus procedure. Also, the unions will possibly acknowledge that a constructive attitude is needed on the part of all those involved with school building. As one union representative put it: "Our cause is not served by our just saying 'no' all the time." This may bring unions to put in work of their own on issues of school building and, by this and other means, seek out teachers with a special interest in and ability for educational development and school building who can participate in the work of design teams or consultative committees. The ultimate responsibility of course rests with the decision-maker - the local education authority - which is politically elected and legally carries the burden also for administrative and financial matters. Furthermore, the educational policy of the Authority may not always coincide with that of teacher, parent and student groups which in a democratic context may create a dilemma. The growing strength of organisations and unions tends to accentuate this dilemma.

Each building authority will have to decide for itself how fast it wants to move towards "the frontiers of education" without being sure of having the majority of their teachers behind them. Some authorities may want to risk taking "the great leap", possibly in development projects, whereas others will prefer to move slowly, making sure of the backing of the majority of teachers. It may be possible to strike a balance by adopting what is sometimes called the MAYA principle, defined as "the most advanced - yet acceptable".

No special reference has yet been made to the teachers, who will actually be working in the schools to be built. In some countries there is a rule that their consent to the design should be secured. However, in many cases it would be impossible to establish who these teachers are at the time when the brief and design are being worked out. In the relatively few instances where this is possible, it might happen that this group of teachers will identify themselves neither with the opinions of the design team nor those of the unions, should these differ. There is no easy way out of this dilemma. Section F deals with the training of teachers for serving in new schools; information and in-service training, however, may help to solve the dilemma. Yet the decision-makers may need to manoeuvre a good deal both to build for the future and to obtain the consent of those who will be the first to work in the new buildings. One instance of a happy solution illustrates this. A secondary school project in a Dutch city met with several difficulties, one of which was the concern of the staff over the "too progressive" views which they felt were held by the specialists. Educational consultants were called in

and they started a process of innovation in the existing school entailing project-oriented teaching and team teaching. At the same time the brief was completed under close co-operation with the head and staff, who were then more motivated for wanting a school in which new educational goals and methods could be put into practice.(1) In summary, in so far as teachers on design teams learn to generalise not only from their own pedagogical experience but from supplementary experience too - and to apply general educational objectives to the development of facilities (cf. pages 208 - 210), the results of their work ought to correspond to the needs of the teachers who will practise in the new schools.

Whatever pattern is chosen for involving the teachers' opinion in the briefing and design stages, special training in this field should be offered them. The experience which teachers have gained through their own teaching and their own development work will have to be put into perspective through the experience of others. Teachers, as well as other members of design teams, should be given possibilities of study visits to regions and schools where different patterns and models are developed; if possible, in other countries. This will give them the chance of viewing their own practice from the outside, and to see that things can be done differently. It is especially desirable that the other members mentioned above should include architects, too few of whom have sufficient knowledge about everyday life in schools, but most of them can be expected to respond well to the stimulus such knowledge would provide for finding appropriate design solutions. The teachers too will also gain clearer insight if they are accompanied by architects and can observe their reactions, while at the same time the joint visits will spark off the dialogue it is necessary to promote. If possible, these study visits should involve not just a day or two, but the opportunity of following the work in good innovative schools for a period of a week or so.

Furthermore, the members of the design team should have access to documentation in the school building field. It would be a good initiative, preferably at the regional level, to assemble material on school building - books and other printed material,

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1) The example refers to a project carried out by the Stichting Informatiecentrum for Scholenbouw, ICS, as consultants to the school building authority in Maassluis near Rotterdam. Other patterns of co-operation between design team (the ICS) and teachers are described in the International School Building News, 7/1973/N° 1, "Development Project Low-cost Comprehensive School in Lelystad", and in the Information Leaflet, "Den Helder, a Dutch Secondary School Development Project", Programme on Educational Building, OECD, Paris, (to be issued in 1976).

slides and other pictures, blueprints, etc. - and make this available to members of design teams. PEB might help by pointing out a basic stock of international material from various Member countries. The UNESCO documentation centres for school building too, might be of help in this connection.

Design teams - whether of an institutionalised character or created for the building of an individual school - could do well to start their work by holding brainstorming sessions, possibly in the form of the "charettes" described earlier, before proceeding to more structured tasks. The work on the building programme for the Berlin Mittelstufenzentren started out with a brainstorming session of 45 people, including all members of the Senate administration for education to be involved in the planning, district administrators, heads of schools and teacher representatives. The session went on for several days and had been planned by a university department, which was also responsible for giving advice throughout the process. The immediate result for the responsible administrators was to work out a network covering all aspects of planning the centres.(1)

Finally, it should be underlined that this pattern of study visits, study of material, and brainstorming, could and should be repeated several times during the briefing and design stages, as insights grow, problems appear and the co-operative spirit of the team develops - but it may need new challenges and the input of outside experience.

C. NEW BUILDING - FURNITURE AND EQUIPMENT

"With the current evolution in teacher/learning methods and the rapid development of new educational technologies, furniture and equipment are if anything more important educational facilities than the school building itself. Furthermore, the kind of furniture and equipment needed and the way that built accommodation is planned and serviced are to a large extent interdependent. Yet, too often the building is conceived and detailed with little certainty of how it will be furnished and equipped, while responsibility for the choice of furniture and major equipment may rest with a purchasing service which has little knowledge of modern educational requirements."(2)

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1) Kledzik, op. cit., page 37 et seq.

2) Information Leaflet N° 4, "ff5 - A Canadian "Casework" or Furniture and Equipment System for Schools", by Paul Lenssen, Programme on Educational Building, OECD, Paris, March 1974, page 3.

This quotation demonstrates the case for a special paper on teachers' participation in planning the furnishing and equipping of a new school building. In this paper it is only possible to underline the basic principle that furniture and equipment planning should be an integral part of the total planning of the school building.

Much too often the furnishing and equipment of the building follows the briefing and design stages and runs parallel to the building stage but has no organic relationship to either activity. Very often the decision-makers have to take decisions on furniture and equipment involving considerable financial consequences, with no real information of what might follow if the type of furniture is changed or some pieces of equipment, of audio-visual material say, left out. Thus teachers who have participated in planning the building for the realisation of generally-adopted educational models may find themselves robbed, at a very late stage of the decision-making procedure, of the very tools which they had deemed necessary, and for the provision of which the building was designed.

To facilitate rational acquisition and positioning of teaching aids and provide the decision-makers with an instrument for judging the relationship of the teaching aids to the realisation of the educational model adopted, the Swedish LINS project was set up.(1) A method was elaborated for analysing activities relating to the educational models developed to realise the 1969 central curriculum of the grundskola (Lgr 69). Teacher and pupil activities are described and related on the one hand to overriding objectives and on the other to facilities and teaching aides, especially the media. A specific administrative decision-making model has been developed on the basis of these analyses to enable administrators and decision-makers to judge the possible effects of cutting the budget, or leaving out certain teaching aids, etc., on education. The LINS model for equipping a new school building was elaborated by groups of teachers working with administrators, architects and personnel from the purchasing service. Similarly the manual, which was the tangible result of this co-operation, would serve to instruct the same categories of personnel charged with equipping a new school or set of schools. Thus the three main groups of the team - described in Section 3 - the decision-makers, the specialists and the users have at their disposal, thanks to the LINS project, a model for their co-operation in equipping the school.

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1) For a short description, see Rodhe and Gran (eds.), op.cit.

While the LINS project concentrated on working out a system for equipping the new building with the right kind of educational "hardware", the SEF project in Toronto, Canada (1) considered the "casework" in the school, that is furniture, such as cupboards, counters, lockers and storage facilities, as a sub-system of the building. As tendering documents were worked out for each sub-system, each relating to the main objectives of the SEF building system, the following main objectives were defined for the "casework":

- to ensure that the design and use of caseworks will interface with and supplement the total design flexibility of the SEF technical sub-systems;
- to ensure that the design and use of caseworks will support the increasing educational demands for variable sizes of learning spaces to accommodate varying sizes of pupil groupings using many different forms of learning materials and equipment;
- to provide the school boards in Metropolitan Toronto with the opportunity to purchase caseworks in a comprehensive and systematised fashion in order to effect greater economy; and to permit interchange of equipment between the boards when required.

Characteristic of the SEF is the early involvement of teachers in the definition of educational requirements. As architects translated these requirements into facilities, to be system-built, the question of how the schools were going to be equipped entered early into the deliberations. The architects did not themselves design the furniture but drew up the performance specifications submitted for tender by manufacturing firms. Thus, the ff5 (the free-form-five/sub-system of caseworks) came into being and, on the whole, has been positively received by teachers, who have appreciated the fact that its basic components can serve a variety of storage and teaching needs. They can be dismantled and reassembled by teachers and pupils in ways that suit them best.(2)

The Collège d'enseignement secondaire at Marly-le-Roi in France may serve as an example of a school where new educational technologies were decisive for the planning of the entire building. "To house up-to-date technologies and prevent a return to obsolete

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1) Information Leaflet N° 4, page 6.
2) Ibid, pages 14 and 15.

teaching-learning methods, the architectural setting was planned as a result of close collaboration between the architect, Pierre-André Dufetel and the teaching team constituted by Henri Dieuzeide."(1) Also the heart of the college, the resource centre (centre d'auto-documentation), was evolved through protracted collaboration between several working parties, with a view to offering each pupil individual instruction at any time he chooses in whatever discipline he wants. This again has entirely changed the pattern of teacher tasks.

Clearly, the theme of teacher participation in the equipment of the school needs to be documented separately. Admittedly the instances cited may seem somewhat extreme; the teachers who are to participate in the planning of most schools will not have, at their disposal, anything like the systems and technologies which are the object of the LINS, SEF and Marly-le-Roi projects. Yet the same basic facts are relevant: furniture and equipment should be treated as elements related to the educational aims of the school and their provision and purchase should be an integral part of planning the building with users/teachers actively involved.

D. NEW BUILDING - INITIATION IN USE AND CONTINUOUS PLANNING

Most goods of a certain degree of complexity are delivered with written instructions for use. In many cases the manufacturer is willing to demonstrate the use of his product. This procedure is most unusual in the case of buildings. Not even school buildings, the use of which is extremely complex, are delivered with instructions for use, and only recently has it come to be recognised that users of new buildings need this initiation. This may be one reason why difficulties when work starts in a new school building are often blamed by teachers on architects and vice versa. "If only architects would design schools as teachers want them...", "If only teachers would use schools as they are meant to be used" are complaints often heard from each side. And teachers may blame the architects even when their own representatives have been members of the design team; the representative's views on the design may not be shared by those teachers who are actually to work in the new school. What, then, can be done to guarantee to users of new buildings an adequate initiation into their intended use?

1) J. Poinssac, "Experiment of the College of Secondary Education at Marly-le-Roi (France), and its Implications for Teaching Tasks". New Patterns of Teacher Education and Tasks: Country Experience: Belgium, France, United Kingdom, OECD, Paris, 1974.

A prerequisite for the adequate preparation of the users is that the appointments of staff to the new school should be made well ahead of occupation. This should apply in the first instance to the future head of the school, but also, if possible, to the whole staff. The more innovative a school building is, the further ahead does its staff have to be appointed. Opportunities for reaching a satisfactory situation in this respect vary from country to country. In Sweden regulations governing appointments of heads and staff make flexible handling of this matter very difficult. In England, on the other hand, education authorities have greater freedom, and may use it for choosing the right kind of staff at the right time. Thus in the case of the Abraham Moss Centre in Manchester, integrating school and community facilities for primary, secondary and adult education, for a district public library, a district sports centre, etc., the head was appointed a year before the start of the centre's main activities. He was then able to have a say in the selection of the staff. In Berlin, teachers were invited as early as in 1972 to inform the authorities whether they were interested in being appointed to one of the Mittelstufenzentren, which would be ready to start work in 1974-76.(1) In France, a decree issued by the Minister of Education in the spring of 1974 provides for the early appointment of teachers to new experimental schools as well as the assignment of specially well-suited teachers to these schools upon the recommendation of a regional inspector. This arrangement, called "pre-assignment" ("désignation anticipée"), will include a probationary period of a year in the new school implying the right of a teacher to return to his old position should he not feel himself suited for his new one.(2) During the period of pre-assignment, the teacher will be free from his ordinary work for a few days a month to prepare himself for his new tasks. This new decree has a parallel in one for the assignment of teachers to schools which are considered worthy of special attention because of their innovatory educational programme, even if they are not accommodated in new premises. Teachers' unions which, in France, have a say in teacher appointments, have agreed to this break in normal procedure, although with some reluctance.

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1) Informationsdienst Schulwesen 1/1972: "Mittelstufenzentren in Berlin. Programm für Lehrervorbereitung". See also idem, 4/1972, and Kledzik (Ed.), op cit., page 112 et seq. The current planning for the building of Oberstufenzentren also provides for a similar procedure, announced in Informationsdienst Schulwesen Berlin 1/1974.

2) It may be assumed that following this first year the staff of the new school will have developed into a team, which will be ready to receive and incorporate a new member who has not had the privilege of a "pre-assignment".

The need for an early assignment of head and staff to a new school would vary according to the extent to which it represented a real innovation in terms of education. Ideally, teachers who have been active on or consultants to the design team should be assigned to serve in the new school. However, this may be possible only in the case of specific development projects, and even then may meet with many practical difficulties. The planning and construction of a school building usually takes several years - three to five is not an unusual time-span. Thus it might be difficult to keep the membership of the design team or of the reference committees intact throughout this period and even more difficult to keep the teachers who were involved as members of staff of the new school. The case of the innovative school in Charlottenburg-Nord in Berlin, where teachers in the planning team were to staff the school, illustrates the difficulty: only very few members of the team were able to accept an assignment to the school, and after a year only one team member is still on the staff. Certainly such a negative experience should not exclude, in any overall strategy of change, systematic efforts to staff the new schools with teachers who have participated in developing the innovative educational model to be applied in the new building. If this is planned well in advance and ad hoc decisions can be avoided, real progress could be made. Such new schools could well be among the most powerful instruments in promoting educational change.

When "pre-assignment" has not been possible, or only possible to a very limited extent, "some form of in-service training or, more modestly, process of acclimatisation will be required", to quote the National Union of Teachers in Britain.(1) So far, this has been a neglected area in most countries. Even EFL, which has been more instrumental in this field than perhaps any other single organisation in Member countries, maintains that systematic training for service in innovative school buildings is still very seldom given. Here is a wide field for action by local, regional and national authorities, by teachers' organisations and other interested parties.

The type of action could, of course, vary widely from very informal to very formal and well-structured in-service training courses. The following examples illustrate a variety of situations.

- In several cases, when new schools are being built, the teachers still in the old schools put the architectural plans on display in order to familiarise themselves with

1) NUT, Open Planning, op cit., page 13

their future working environment and be able to think ahead as to how a current project might be carried out in the new building compared with what is done in the old one. Large-scale models with model furniture are also used for the same purpose.

- There have been various efforts to give future teachers who are going to work in new buildings the chance of serving for a time in a building similar to their future workplace. Thus teachers due to work in a new English school were given the opportunity of working for a whole term in another recently built one before starting to plan how they would teach in their new premises. Teachers in Danish, Norwegian and Swedish open plan schools have exchanged jobs for a week or two, travel costs being borne by the local authorities.
- A Danish community with several innovative school buildings published a series of reports containing material and plans of new schools, conference reports, etc. These were used as a basis for initiating the future staff in the use of their schools.(1)
- In an old school which was going to move to an open plan building the sports hall was used as an open area some time ahead of the move. Thus teachers could adjust ahead to working and planning in the new kind of environment.
- In Denmark the Elementary School Teachers' Union arranged a conference on education in new school buildings thus making it possible for teachers with different kinds of experience to share their experience with others. Similar initiatives are presently being taken in a number of countries.(2)
- In France a recent initiative by the Ministry of Education aims at providing training for design teams.(3)

In Sweden the National Board of Education asked a group of educationists from Göteborg, Malmö and Trelleborg - three cities where open plan schools have been built during recent years - to produce material for in-service training courses. The material(4) aims at preparing:

1) "Rapporter om skoler med åben-plan", 1 - 3, Ballerup-Måløv kommune, 1970, 1971, 1973 (stencils).

2) The NUT publication Open Planning, already referred to, may well serve as a basis for discussions at such conferences.

3) "L'aménagement de l'espace scolaire", Les informations du ministère de l'Education nationale, 31st January, 1974.

4) FB Öppna skolor, Att arbeta i en Öppen skola (To work in an open plan school), Studiematerial Häfte 1 & 2, Stockholm, 1973 and 1974.

- future staff in open plan schools;
- staff in existing open schools;
- trainee-teachers;
- heads and teachers, in differently designed schools.

It is divided into two parts. Part I explains the educational principles behind the open plan, and gives examples of planning for the first term in the new building; Part II is meant to be used during the first year of activity, in the new schools and offers examples of ways in which the various subjects can be organised in an open plan situation. These examples all relate to a fictitious "model school" and the work is simulated in the facilities of this school, stimulating teachers to go on planning along similar lines. It is assumed that teachers will work in teams and all the staff - whether teachers, assistants, counsellors or people having other functions in the school - will take some part in planning the work programme.

The most ambitious programme devised so far for initiating teachers in the use of new educational models and buildings seems to be that organised by the Senator for Education in Berlin for teachers who had shown an interest in serving in the Mittelstufenzentren. Advantage has been taken of the fact that due to a change in the school year successive groups of teachers would have part of the school year free from teaching duties. These periods were used for in-service training, which included seminars common to all the teachers, subject-oriented studies and seminars, courses related to extra-curricular activities to take place in the new buildings, workshops of group-dynamics (optional) and a process of evaluation.(1) In the programme for the first few years of in-service training 1973-74 no special attention was paid to physical facilities in terms of what they required and what they could offer. However, as five centres were taken into use at the beginning of the academic year 1974-75, the 1975 course will be held at the new buildings and special efforts will be made to relate the training to special qualities of the accommodation provided. A special training programme for those who were to handle these courses was provided. Those who declare themselves interested in serving the new Oberstufenzentren now being planned will be offered the same type of training. Since the current programmes

1) Kledzik (Ed.), op. cit., page 112 et seq.

A special series of leaflets, called Fragenkatalog, has also been prepared for information of and discussion by teachers.

Informationsdienst Schulwesen 1/74: "Berufsfeldbezogene Oberstufenzentren Konzeption und Planungsverfahren", includes a form for teachers to register their interest in participating in the planning of the centres. See also in Gesamtschulinformationen, 1 and 2/1974, Pädagogisches Zentrum, Berlin.

form the object of evaluation by both the participants and a research institute, the feedback from these evaluations will certainly influence the planning of future programmes.

Obviously, starting work in a new school building will mean additional efforts by all involved. If possible, provision should be made to reduce the teaching load of the staff during the first year, as is already done in some places - thus Berlin plans such a reduction in its Mittelstufenzentren. Advisors, inspectors and other personnel with local or regional responsibilities should spend extra time assisting the staff to make the new school operational in its new premises. The design team should continue to function during the initial period in order to ensure that the intentions of planning and design are translated into actual work. This means somehow retaining the services of the architect for a longer time than usual. Teachers and other staff who come to the new building should be made to feel that they can still influence the environment - thus not all the equipment and material should be bought beforehand but some funds left for staff to dispose of as needs arise. Time and funds should also be available for developing curriculum material or adjusting prefabricated teaching material according to the needs of and possibilities offered by the facilities and by the educational programme for which the building was planned. Staff should also be able to relocate mobile components and equipment in the light of experience in use so as to recognise the opportunities such relocation provides.

The case of a school building project in Germany illustrates how this may be done. When the integrated Gesamtschule Rodenkirchen in the district of Köln in Nordrhein-Westfalen was being planned, a most friendly relationship developed between architects and educationists. This was extended to the teachers, who entered the planning process only as the building was completed, and to pupils and auxiliary personnel. The architect also spent several days a week in the building after school work had started. Thus he was able to assist the users as they began to realise the potential of the building for their work. He, too, benefited from the opportunity for continuous observation of the educational process.(1) His experience has been drawn upon in courses for young teachers on the use of buildings for educational purposes. In another German case an architect has become the director of a technical college housed in an innovative building in Löhne, Nordrhein - Westfalen, which should make him uniquely able to guide and teach both architects and educationists about the planning and use of buildings.

1) Schulbauinstitut der Länder, Kursinformation 3, Sonderdruck, Berlin, January 1974, page 34 et seq.

If, as in the case of many new integrated or co-ordinated buildings, authorities other than educational ones share the responsibility for managing the new complex. the model of co-operative management needs to be well prepared and the initial operation carefully observed and encouraged. No ready-made patterns are normally available for this kind of joint management and extra efforts have to go into developing them. Very prosaic factors, such as responsibility for custodial services and cleaning can mar smooth co-operation if not planned and agreed upon well ahead of time.

Teachers and other staff need training before they start work in new school buildings. Even pupils may need training. But staff have often been surprised to see how easily even very young pupils (and perhaps especially the very young ones) have adjusted to the new environment and found out how it might be used. In an innovative elementary school building, integrated in a community centre in Grenoble (France), the children showed the teachers the way to work in the open area ("l'aire ouverte"); it took teachers much longer to feel at home in the new environment than it took the children. Teachers would do well to give children a chance of showing the way in this kind of situation; in doing so they may eventually get into the habit of planning the use of space with their pupils. In the Netherlands very positive experiences have been made in respect of involving pupils at an early stage. Thus when a school in Utrecht was being planned, pupils made various designs and models and expressed their ideas on flexibility. Even if informing pupils does not always give results as spectactular as those in the examples mentioned, it should be a rule that before a new school is put into use ample information is given not only to teachers and other staff but also to pupils and parents. Information leaflets, free access to the new school buildings and discussion evenings proved useful in introducing parents to the German Mittelstufenzentren.

In quite a few cases it has been observed that in-service training and initiation programmes held before the start of work in a school building of a new type have had less effect than was expected. Somehow the new experience was too different from the old really to be anticipated, and as a result a good deal of this training was lost. Some authorities have found it useful to repeat the introductory course or, rather, to divide it up, so that teachers and other staff having had some experience of working in the new school could be offered an opportunity of evaluating this experience and learning more of the possibilities the building offers. This has been envisaged in the Swedish material referred

to earlier. The teachers in the Berlin open plan school Charlottenburg-Nord are said to have found the second introductory course, offered a year after the first one, of more value than the first.

Continuous planning

It has been said all through this paper that one of the most important new aspects of school building is that it is to be considered as one of the instruments used to realise the educational objectives of the school. This implies that the planning of the school building is never complete. To quote an EFL publication: "The hardest new lesson is to recognise that a facility used by a live organisation is never finished. It is never finished. It is, on the contrary, always in a state of adjustment, growth and restatement ... The planning process, then, has to be dominated by the premise that it is a continuing function. Issues and their resolution must be very close to one another - in an 'on-line' relationship. 'On-line' - a term which has emerged from the computer world - implies a plug-in to the continuing spectrum of live events in an organisation. Its point is to avoid the pitfalls of decision-making based on stale information parked on side-tracks. 'On-line' planning is management that marshalls current information to make decisions about change and keeps the physical facility in a posture that can respond. This not only permits desirable variation in day-to-day programming, it permits the accommodation of exceptional events which assuredly happen." The conclusions drawn are the following: "The hit-and-run services of architects, consultants, and other experts who deliver a facility and then disappear from the scene are no longer adequate. Their roles will have to be re-conceived in terms of sustained involvement in the organic evolution of the facility. This may be through formal contractual arrangements for sustained service or through informal understanding with the professionals that they will be available. Whichever way, it will take teams made up of design specialists who learn to think like teachers, and teachers and administrators who learn to think like designers, to make "on-line" management planning an applied tool in education."(1)

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1) EFL, High School: The Process and the Place, op. cit., pages 110 and 111.

The need for the architect - or preferably the whole design team - to remain involved is being increasingly recognised but still rarely met. Ways should be found of securing the continuous service of the design team both in connection with the planning of the annual work and whenever plans are made for the further re-modelling of the building. This should be a continuous process, the prerequisites of which are, in principle, the same as for new building. Certainly, the cost may be considered prohibitive. On the other hand, the continuing involvement of teachers in such a process would secure much better and more imaginative use of existing buildings so that savings would be possible elsewhere. For the present neither builders/decision-makers nor teachers are, on the whole, prepared for this kind of continuous planning. This sometimes makes for a vicious circle, where the failure to provide for architects to assist teachers results in the building being used less functionally than was intended. At the same time, instructions for use may be considered by the individual teacher an undesirable intrusion upon his traditional loneliness, a loneliness which he is used to calling his freedom.

The cost for involving architects not only during the briefing, design and construction stages but also in the continuous planning related to the use of the building would depend on the relationship between the building authority and the architect. Where the authority has its own architects - like the county architects in England - it might be natural for these to follow through and try to evaluate what they have done in terms, also, of "tuning up the building as new tunes were invented for it to play", as one architect put it. Authorities which do not employ their own architects but still have a large building programme would probably be wise to create consortia of private architects who can be given a continuing commission to built not just one school but a series. This would enable them to enter into a stable relationship with the users of the schools and reach a growing understanding of their problems, and also to feed the experience gained in the first school(s) into the next one(s) in the series. This kind of arrangement would probably change the cost aspect of involving architects, together with the educationists, in the continuous planning of the schools.

The budget should be planned to allow for adaptations to annually changing needs and for purchases of additional equipment as new needs arise. The decisive point is that the use of space and equipment is made an integral part of all educational planning. The traditional way of assigning certain facilities to one teacher and his class at the same hour over the whole school year may have

to be abandoned. Instead, a set of facilities should be assigned to a group of teachers for the whole of the school year or for part of it. It would be left to the group to settle among themselves how these facilities should be used for the activities they are planning. This allocation of facilities should not result from any fixed rules. It can and should vary, within certain limits, as educational practice develops; and must therefore be the subject of a series of decisions which form an integral part of the life of the school.

New perspectives are thus opened up as to school organisation and management. This has been apparent in new types of school buildings in Norway and Denmark (in Sweden, too, though less markedly). Groups and teams of teachers work and plan in an increasingly independent way, heads become co-ordinators, links to the outside world, and less of "rulers". Self-governing groups are also coming into being in English schools. In Norway the question is being asked: does the school need a head? and structured R and D work is being designed in order to try out non-hierarchical models for the management of schools.(1) There is, however little or no correspondence between these new ideas and the rules that - so far - lay down the responsibilities of heads of schools. Because of this it has not yet been possible to put into practice along these new lines the proposals emanating from the R and D work. In Sweden the report of the SIA Committee (the committee on the internal working conditions in the school) recommends far-reaching change in school management since in the case of each school a governing board will take over a share of the responsibility, partly delegated from the national, regional and local authority levels, partly from the head.(2) Although, so far the conclusions and proposals of the SIA Committee do not really concern school buildings(3), the examples drawn from Norway

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1) p.i.p. Forsök i Osloskolen, 1-1974, plof: "Er styrer nödvendig? Skolestrukturer. Grunnskolene i Oslo vurderer egen struktur". Rapport fra skolsjefen i Oslo, Nr. 25, Oslo, 1973. A. Saltness, "Administrasjon og ledelse i apne skoler", Informasjon om forsöksarbeid, Nr. 41, Oslo, 1973.

2) Skolans arbetsmiljö, Betänkande avgivet av Utredningen om skolans inre arbete (Sou 1974:53), Allmänna förlaget, Stockholm, 1974.

3) The Committee has published a discussion paper on what was called a "home-room school", a variation of the open plan school, "Högstadieskolans Fysiska Miljo", 1973; as well as a survey of Grundskolans lokalresurser, Utbildnings-departementet 1974:3, dealing with facility resources for the grundskola.

and Denmark seem to indicate that physical change in buildings, called for by educational change, in its turn calls forth organisational change and furthers participation and democracy.

Finally, a word should be said about the importance of feedback in relation to continuous planning, i.e. that experience gained in new school buildings is fed into the planning of further buildings. Some building authorities will carry out the necessary evaluations through informal observation; others will prefer to combine it with a more scientific approach, using research teams to observe and interpret change.

E. TEACHER PARTICIPATION IN RESEARCH AND DEVELOPMENT WORK

At the OECD Symposium on School Building and Educational Change an attempt was made at defining research and development work in the field of school building: "Research in school building is largely applied research. It is located at the intersection of research conceived as an autonomous activity, with the practice of innovation in school building. Development work links research with everyday building practice. It takes scientific theories and techniques evolved under controlled laboratory conditions and applies them to school building problems, where they are subject to the influences of economic, industrial and commercial factors which affect their use. For example, research in the field of psycho-physics helps to define the most beneficial physical conditions for work in school, and development then seeks the best solutions within the cost available. Development then becomes the integration of all available knowledge - educational, social, scientific and technical - applied in school building projects. During the course of development new problems are encountered on which further systematic research is essential. These may be referred to specialised research institutes (e.g. national building research agencies) or to appropriate university departments. Systematic evaluation of innovatory projects, and dissemination of the results, is also an essential part of development processes."(1) The section on research and development activities in the report on the above Symposium, gives what is probably at present the best overall view of what such activities could and should be about. However, little is said about the specific participation of teachers, a fully understandable omission. A brief indication will be given here.

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1) Pearson, op.cit., paragraph 62.

So far teacher participation has often been merely passive. Teacher practice may have been observed directly by research and/or development workers. Teacher opinion has been asked for in, sometimes, endless questionnaires. In other cases teachers themselves have been active in asking for the results of research, for example in relation to a certain type of building, but even here they have generally not asked to participate in actual research and development work. In cases where teachers demand scientific evaluation of buildings their claims could be taken as a point of departure for involving them more actively in such work. Buildings can never be evaluated as such; it is only in use that they can be assessed, and teachers are the ones who have to make them function according to the educational model(s) for which they were built. This would be true whatever the organisation of school building research. In the inter-disciplinary co-operation necessary for research and development work in the school building, which has yet to find its expression, the participation of teachers and educationists is indispensable. These are some of the tasks which they would have to perform:

- define problems connected with the realisation of educational objectives;
- assist in developing a methodology for translating objectives via educational models into facility requirements on the basis of a "multi-dimensional analysis of activities;
- participate in "action research", for example, as regards the application of alternative educational models to a school building;
- participate in the process of feedback through constructive criticism of design solutions.

So far there seem to be comparatively few research projects dealing with the relationship of the building to educational objectives and practice. Very few scientifically-based evaluations exist of traditional buildings; most efforts have gone into evaluating innovations, a difficult undertaking since there is a serious dearth of data for comparison. Examples of evaluation projects of new buildings are to be found concerning SCSD and SEF(1),

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1) See in particular Alexander B. Leman, A Study of Systems Building Evaluation of SEF, (to be published in English and French, by the Department of Industry, Trade and Commerce, Ottawa).
Within EFL, John Boice is responsible for evaluation studies of systems built schools.

and also in respect of open plan schools in Sweden and Norway.(1) In all such projects much remains to be done in terms of developing methodologies, a task for the interdisciplinary research team. They will not be able to fulfil it, however, without the active and continuous co-operation of the educationist in the field. Little research is being carried out as yet in the field of school building, but even so, problems of disseminating such findings as do exist are evident. When research is planned, funds for the dissemination of results should always be set aside, and appropriate channels found. International organisations could play an important role here - and have, in fact, already done so.

F. TRAINING OF THE USERS

The concept of the school building as an instrument for the realisation of educational objectives is still new. It is, therefore, not surprising that in all Member countries people are to be found who say that teachers are not yet sufficiently trained, or not trained at all, to use this instrument. This is why, aspects of teacher training are dealt with in this paper.

For many years to come the majority of teachers will have to teach in school buildings put up before 1960; many in much older buildings.(2) They will have to learn how to adapt these, as far as possible, to new demands in educational and environmental terms. They will also have to get used to and actively participate in a process of transforming school buildings into buildings which can be used by the community as well as for a variety of purposes. This will apply even more in the case of new buildings, since in some countries school buildings as such are gradually disappearing and building for education is generally considered as part of the

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1) Gran (ed.), "The Open Plan Schools in the Malmö Region", op. cit.

Rodhe and Gran (eds.): New Patterns of Teacher Education and Tasks, Country Experience: Sweden, op. cit.

S. Svensson and others: Öppnare skolor i Göteborg, Rapport N° 1, Göteborg, 1973.

Gran, "Öppna skolor i Sverige, en Lägesrapport, "Pedagogisk-psykologiska problem, N° 234, Lärarhögskolan, Malmö, 1974.

2) The Swedish SIA report, Grundskolans lokalresurser, contains a detailed assessment of the age of Swedish school building. At the same time the report shows how difficult it is to make such an assessment.

The EFL publication, New Life in Old Schools, Chicago 1968, gives an estimate of the age of school buildings still in use as such in the United States, page 1 et seq.

building programme for the community at large, with multi-purpose use of most facilities. At the same time teachers will also have to get accustomed to the use for educational purposes of buildings not originally designed for such purposes. "Found space" is a concept which will probably have to become familiar to teachers not only in the United States, where it has spread during the last few years, and this not solely for economic reasons. Teaching and learning will have to take place not only in buildings planned or adapted for educational purposes, but also using the opportunities provided by society as a whole. This in itself will reduce the demand for and quantitative needs of educational building - a factor which will have to be taken into account when new educational buildings are planned. Thus the fact that physical facilities increasingly constitute instruments for realising new educational objectives not only influence the character and quality of the school building as such but also makes it necessary to recognise that these could consist of facilities other than building specifically designed for education. It could be "a found space" in its widest sense, and this concept has to become an integral part of any planning by teachers bearing in mind that "found space" is equally an instrument for purposes other than educational.

The relation to space and physical facilities is not yet, but should become, an aspect of initial training of teachers. In most countries the traditional school building with its traditional equipment still seems to be taken largely for granted as the educational environment with which the trainee-teacher is to become familiar. The relation to facilities must henceforth become one of the variables he is taught to handle when learning to plan his teaching. For this reason it seems essential that his teachers are not all educationists but that he also meets architects and other people who have specialised in the design and use of buildings. In Germany there is at least one example of school building being treated as an integral part of teacher training, but this should become general practice.(1) However, the problem is not solved by adding one more theme to all those which already form part of teacher training. The most important thing to learn, from the beginning of teacher training, is how to use the building as an educational instrument but also how to leave it when other facilities would better serve a particular educational objective. The practical training should, whenever possible, take place in

1) In Dortmund. See: K.H.Koch, Schulbaubuch, Bertelsmann, Düsseldorf, 1974; and K.H. Koch & H.G. Rolff, Konzepte der Sozialen Organisation - und Raumstruktur von Schulen der Sekundarstufe I - Eine Projekstudie", (stencil), Werkheft, March 1974.

different types of school buildings, so that the trainee-teachers learn how to use the potentials of varying facilities. The class and the classroom should not be regarded as constant factors in the planning of trainee lessons; whenever feasible such planning should include the use of flexible grouping and deal with related needs for space. The fact that teacher colleges are often built on traditional lines and that many of those in charge of teacher training have themselves little experience of using physical facilities as instruments for the realisation of educational objectives may be a barrier. Consequently the training of those in charge also becomes an important issue.

It is growing increasingly clear that initial training cannot adequately meet all the needs of teacher training. Continuous in-service training is therefore being introduced in most countries. Most of what has just been said about initial training in relation to physical facilities could be repeated here. In-service training as regards the use of facilities should, as far as possible, be closely related to the actual situation in which a teacher works or may come to work. Instances of how programmes have been developed in different countries for training teachers who are to serve in new buildings were quoted in Section D. This kind of training should not be limited to new building - it is just as important for teachers who will continue to work in old buildings to be given the opportunity to re-think and to learn how to go about adapting old schools to new purposes. Similarly, the integration of the building aspect into other themes of in-service training is essential.

Not all in-service training need be in the form of courses or seminars. Much could and should be literally in-service training of a more informal character. The head of the school should take the lead, possibly assisted by an architect specialised in school building (or other building expert) and by the local or regional educational adviser. In some countries the inspectors take such initiatives on the occasion of their visits to schools; in other countries this is still a possibility which has not been sufficiently exploited. As team teaching becomes more and more frequent in schools the spatial planning of teaching and learning situations also becomes a learning situation for teachers who may earlier have been confined to the traditional classroom and have taken this for granted as the only possible environment for their teaching.

Learning about physical facilities and the active use of them for educational purposes can never be confined just to class or conference rooms of the traditional type. Teachers in training, whether of an initial or in-service nature, should have the

opportunity of seeing, and working in, school buildings of very different types, and thus of learning how planning and teaching could involve different spatial conditions. Teachers' centres, where they exist, and especially where they have been integrated with new buildings, could be used for these purposes. In Britain several of these centres conduct courses on the planning and use of school buildings, and often make a valuable contribution as regards locating and training possible members of design teams.(1) Teachers working in new school buildings should take special responsibility for conducting in-service courses, and possibly also participate in initial teacher training. Provision should be made for such tasks in determining their work load.

Finally, something should be said about possible methods for training in the use of space and facilities. The most important method has already been mentioned, namely to provide teachers with the opportunity to practise teaching in school buildings of different types, including, if possible, new and innovative buildings. Study visits to other schools are useful, but actual teaching practice has far greater value. As team teaching becomes more and more common it should not involve any great problems to accept an additional member of the team for a period of a couple of weeks. As a preparation for and a follow-up of such live experience, or, if necessary, to replace it, simulations of different kinds could be used. Models are useful, especially if they contain movable partitions and furniture.(2) Architectural plans with movable needles signifying staff and students were used in the development of the Swedish LINS project and were found helpful, though the method proved time-consuming. Games and role-play help teachers to face and solve problems in new surroundings. In the second-year course in Charlottenburg-Nord, already referred to, teachers were asked in advance to write down their most acute problems and transmit their notes anonymously, and some commonly recurring problems were dealt with in role-play. This was found an extremely useful method. Schools of architecture often have full-scale laboratories; these could be used and shared by schools of education. It appears, however, that methods for the use of such laboratories in situations as complex as those arising in the field of education still have to be elaborated. The further development of methods for training in the use of school building facilities would seem to be an urgent task for research and development.

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1) See "Teachers' Centres" page 97 of this volume.

2) Such models could be fabricated not only by architects but also by pupils, and be put to use in training situations where both staff and pupils are involved.

Only the training of teachers has been treated in this section. However, it is becoming increasingly recognised at least in some countries, that, whenever possible, teachers should be trained together with other members of school staff, and this of course also applies to training in the use of buildings. Architects, too, need additional training about school buildings as instruments for realising educational objectives, similar to that which has been recommended for teachers.

G. SUMMARY OF CONCLUSIONS

This paper attempts to describe the contribution of educationists in the provision of new school buildings and the adaptation of existing stock. It will also look at the measures needed to help teachers make full use of the educational tool represented by the school building, its furniture and its equipment. It combines the concerns of two OECD programmes, that on Educational Building and that relating to Teacher Policies. The school building is seen as one of the instruments at the teacher's disposal for realising educational objectives. For this, it may be necessary to make changes in the building, be it an existing building or a new one.

Section A

"In the years ahead, we may see more of rebuilding and less of new building within the educational sector of society", writes a director of education to the teachers of his country at the beginning of the school year 1974-75. This is why adaptation of the existing stock of buildings occupies a relatively large place in the present paper. In the majority of cases the traditional building, the "egg-crate school", which may have been functional in a different pedagogical situation, impedes the realisation of new educational objectives, such as democratisation and individualisation. It may also form a barrier to the effective use of new media.

Though some teachers cling to the old type of building, others find it inhibits educational change and resign themselves to the status quo. Others again, see the possibilities for change only in addition to the existing building. Some illustrations from different countries and at different school levels are given, to show how, in many cases, teachers have found constructive and imaginative solutions to the problems of adapting existing buildings in order to realise new objectives.

Measures of the following kind could lead to the drawing-up of a strategy which may stimulate and encourage such initiatives on the part of the teachers:

- closer interaction between teachers and local, regional and/or national agencies and officers should be developed;
- the individual school should be encouraged to try, in the first place, to work out its own solutions;
- the head of the school who carries the main responsibility, should be on the look-out for persons on his staff with specific gifts for using space in a constructive manner;
- educational advisers, regional inspectors, directors of education, etc., should be aware of initiatives in local schools as regards new use of facilities and offer assistance, wherever needed, when the resources of the individual school are exhausted;
- advice of a school building architect should be made available to staff of the school for formulating ideas and proposals;
- the efforts of teachers should be combined with those of other personnel, pupils and, possibly, parents.

Section B

In the tripartite involvement of decision-makers, technical specialists and users in the briefing and design of new buildings, educationists may be found among the specialists, but more often among the users. The specialist/educationist, who is often an educationist/administrator, is needed as co-ordinator, a liaison officer between decision-makers and users, and the person responsible to the decision-makers for organising the teachers' contributions. Not only a dialogue between specialists and teachers/users should be attempted but a "plurilogue" between all parties concerned, going on throughout the briefing and design stages - two stages which should emerge. This means that it is not enough to involve the teachers only in the beginning of the briefing stage in order to define "user requirements", or at the end of the design stage for "consultation" on the design.

Instead, teamwork should take place all through the planning of the building, teamwork which might be defined as a situation where:

- everyone has his own special competence and responsibility, but decisions are taken together and after open discussion;
- members of the team are prepared, able and willing to discuss all problems with one another, as they arise;

- a common language is gradually developed, each party taking care to make sure that he understands and is understood by the others.

This kind of team work should apply to a process whereby educational objectives are translated via educational models into activities with a view to determining the facilities needed. Methods for this kind of translation process are still to be developed. As the building design emerges out of the teamwork, it is very important to check that it fits not just one educational model but that different models can be applied. This may call for the involvement of more educationists.

The question of who are the teachers to be included in the design team is of prime importance. Possibly, those who - as under A above - have themselves worked to find constructive solutions to the application of new educational models in old buildings could be especially useful. However, the teachers' unions may also make claims for their elected representatives to be consulted and even made members of the design teams. In addition, the teachers who are to teach in the new buildings - in the minority of cases where they are known in advance - may want to have a say. The selection of teachers to be included on design teams and the forms for further consultation of teachers must be decided according to the specific conditions and relationships between building authorities, teachers and their unions in various countries. The authorities always have to take the needs of society at large, and those of other personnel, pupils, etc., into account besides those of teachers. Teachers who are involved in design teams should be given the chance to study material, models, other schools, and, as far as possible, to share this experience with the architect and other technical specialists.

Section C

On the whole what has been said about the briefing and design stages also applies to the furnishing and equipment of a new or remodelled school building. Furniture and equipment should be regarded as a part of the total design of the school and not left to a purchasing service at the construction stage, as is still too often the case. Some interesting examples of integrated planning and development in this field illustrate this statement.

Section D

School buildings should be delivered with instructions for use like other goods of a certain complexity. Often this means that a phase of initiation should be allowed for teachers and other personnel.

- Early appointment of the head and at least some teachers is highly desirable wherever feasible, in order to secure adequate pedagogical planning of the use of the building. Thus a new building, designed for the realisation of new educational objectives, and planned through the kind of process outlined above under B, staffed ahead and with plans for the teaching practice worked out beforehand, could become an important element in a global strategy for change.
- Several examples are quoted to illustrate that, under different conditions, different modes of initiation, ranging from informal to more formal, can be effective.
- It is important that the services of the architect and of educational advisers be retained during the preparatory and introductory phases.
- The initiation phase should be followed by continuous planning and adaptation of the building, which should be regarded as never finished. If possible, the architect should be integrated in this continuous planning and should help to ensure that the potential of the building for flexibility and adaptability is sufficiently exploited. New opportunities for in-service training in the use of the building should be offered, as problems and possibilities may occur only gradually. Team teaching offers good possibilities for the informal introduction of new teachers in the use of the building.
- The planning of the use of facilities may well be assigned to teams and groups of teachers and not fixed by the head for the whole school year.
- Such practice may lead to the development of new concepts of school management, the development of self-governing groups and a new role for the head.

Section E

In research and development work on school building, which in its educational aspect is still very much in a beginning stage, teachers may have to perform such functions as:

- defining problems connected with the realisation of educational objectives;
- working on a methodology for translating objectives via educational models into facility requirements;
- participating in "action research", for example, on the application of alternative models to one and the same project;
- participating in the process of feedback through constructive criticism of design solutions.

The importance of continuous study and review of past experience in order to achieve an effective feedback process is especially stressed.

Section F

The relation to physical facilities should become an aspect of teacher training, in initial training as well as in-service training.

- The building should become one of the variables which the trainee-teacher learns to use when he plans his teaching, thus making sure that he learns to look upon the building as an instrument for achieving educational objectives.
- Practical training should take place in different types of school buildings.
- Whenever possible teacher training institutions should be equipped with facilities to demonstrate the constructive and flexible use of space.
- In-service training should contain similar elements. Teachers' centres may play an important role in such activities.
- Methods for training in the use of school building should be systematically developed. The use of simulation models, games, full-scale models, role-play, etc., should be encouraged, although it is probable that the opportunity for visiting buildings of different types and observing the use made of them has the greatest educational value.
- Whenever possible, educationists and architects should be given experience in the educational use of school buildings together. The training of architects should be revised in ways similar to those indicated for the training of teachers.

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